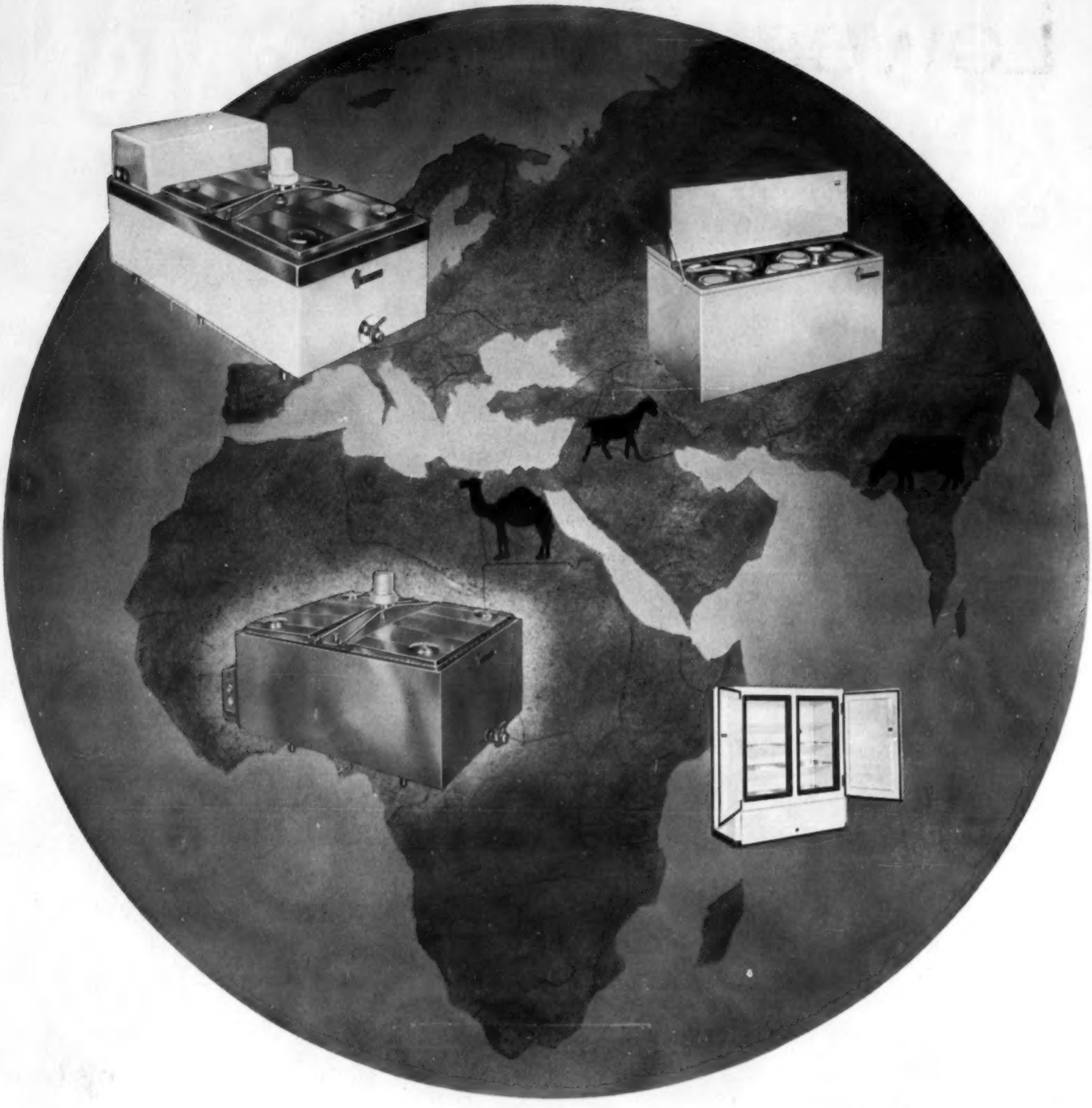
HOARD'S DAIRYMAN

75 YEARS OF LEADERSHIP
1885-1960

JUNE 10, 1960

THE NATIONAL DAIRY FARM MAGAZINE



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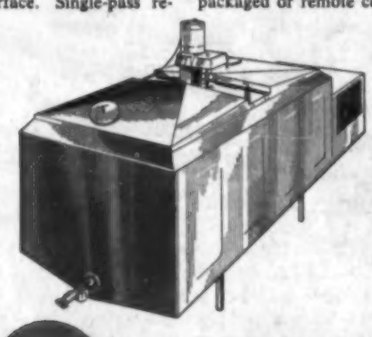

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HOARD'S DAIRYMAN

The National Dairy Farm Magazine

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Fort Atkinson, Wis.

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June 10, 1960

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COVER PICTURE

Almost everyone has had at least some experience putting up hay the 1885-way. Imagine putting it all up with back and bicep! Here a composite of two photos taken on the Hoard's Dairyman farm illustrates the old and the new. For the old we had to draw on the talents of city slicker Don Fry from our electrotyping department at Hoard's Dairyman. The farm men simply went on in their accustomed way putting up early-cut alfalfa on the barn dryer. Since we started cutting about two weeks earlier the herd has shown its appreciation of high-protein, low-fiber hay by boosting production substantially.

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The receipt of Hoard's Dairyman is notification that money on subscription has been received. The label on paper will show date to which subscription is paid. Changes of address should reach us three weeks in advance. Include old address.

Unwholesome, immoral and questionable medical advertising is excluded. A sincere effort is made to carry advertising of only reliable people. We will always take it as a favor to be notified promptly whenever any advertiser's dealings with the subscribers are not in good faith or evidence a lack of business honor. Advertisers recognize the readers of Hoard's Dairyman as an up-to-date class of farmers, and we hold our columns for the patronage of only those with whom our readers can deal with profit and satisfaction.

Hoard's Dairyman is published on the 10th and 25th of each month. Advertising copy for the 10th of the month issue must be received before the 10th of the preceding month. For the 25th of the month issue, copy must be received before the 25th of the preceding month.

Washington Dairygrams

HOUSE APPROVES $19 MILLION FOR BRUCELLOSIS ERADICATION PROGRAM. MATTER OF REQUIRING 50-50 MATCHING BY STATES RECEIVING DISCUSSION.

LATEST VERSION OF FARM BILL APPROVED BY HOUSE AGRICULTURE COMMITTEE 20 TO 13. LIMITED NOW TO WHEAT AND FEED GRAIN PROGRAM, IT BEARS LITTLE RESEMBLANCE TO ORIGINAL PROPOSAL OF FAMILY FARM INCOME ACT OF 1960. ALL AMENDMENTS TO AGRICULTURAL MARKETING AGREEMENT ACT IN ORIGINAL BILL ELIMINATED. DIFFICULTY IN GETTING BILL PASSED ANTICIPATED.

U.S. TROOPS AND VETERANS HOSPITALS USED MORE MILK IN 1959 UNDER SPECIAL PROGRAM AUTHORIZED IN 1954. INCREASE AMOUNTED TO 526 MILLION PINTS. PART OF COST COMES FROM C.C.C. FUNDS, AMOUNTING TO $23 MILLION, ABOUT SAME AS IF C.C.C. HAD PURCHASED EQUIVALENT AMOUNT UNDER PRICE SUPPORT PROGRAM.

WHEAT CROP ESTIMATED TO BE FOURTH LARGEST ON RECORD. ADDED REASON WHY FARM LEGISLATION WILL BE LIMITED TO WHEAT THIS YEAR. EVERYONE HERE AGREED THAT UNLESS CORRECTIVE LEGISLATION IS SECURED, ENTIRE FARM PROGRAM COULD COLLAPSE, INCLUDING DAIRY.

PROPOSED NATIONAL MILK SANITATION ACT BEFORE SUBCOMMITTEE OF SENATE LABOR COMMITTEE. FULL COMMITTEE ACTION DOUBTFUL.

MORE CHEESE TO BE IMPORTED. NEARLY 7 MILLION POUNDS MORE OF EDAM, GOUDA, AND ITALIAN-TYPE WILL COME IN FOLLOWING RECOMMENDATION BY AGRICULTURE DEPARTMENT AND TARIFF COMMISSION. MOST OF INCREASE COMING FROM THE NETHERLANDS.

HIGHER FARM COSTS EXPECTED FOR 1960. INTEREST PAYMENTS AND PROPERTY TAXES WILL BE UP SHARPLY, HIRED LABOR RATES TO INCREASE. LIVESTOCK AND FEED COSTS MAY BE LOWER.

★ ★ ★

In YOUR next issue!

COWS WITH BIG APPETITES MAKE MORE MILK! . . . New Jersey studies indicate that cows' appetites for roughage are closely related to their producing ability and this characteristic may be passed on to their daughters.

OLD-TIME FLY CONTROL GONE MODERN . . . Latest recommendations for controlling flies on dairy cattle are presented in this article along with the results of a fly control demonstration conducted in Wisconsin. Don't miss it!

HOW TO PAVE BARNYARDS WITH BLACKTOP . . . Here is the step-by-step procedure for using this ready-mixed material that is gaining favor among dairy farmers for surfacing barnyards.

AND MANY MORE . . .

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Fort Atkinson, Wisconsin

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Banafly is a spectacular fly killer in dairy barns, hog and poultry houses, livestock shelters — wherever flies are a problem on your farm or outside the house.

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***BANAFLY* Spray Base**

Contains pyrethins for quick kill, and repellents to protect cows on pasture. Helps keep milk production up. Avoids residues when used as directed. Mix with water (or oil) to spray directly on cows. Special action helps keep cows show-coat clean. Costs as little as 7¢ per gallon.

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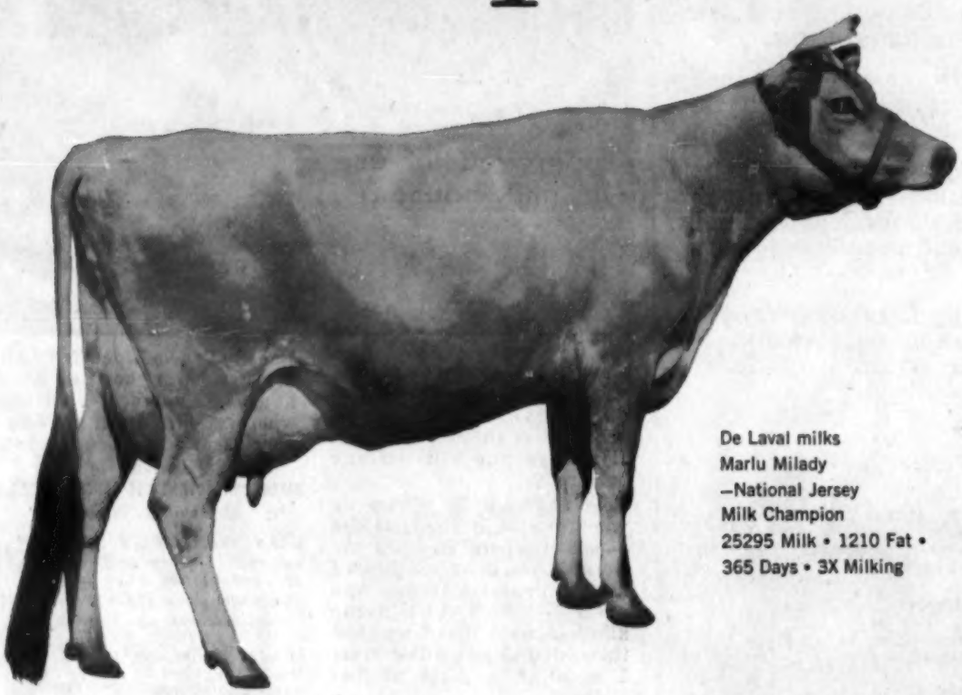
Contains two powerful fly killers —DDVP and malathion. Two-way action kills flies and maggots. Scatter regularly in stanchion areas and in calf pens after cleaning for continuous fly control. Grit-size particles won't blow away. Economical—a little treats a big area. Safe when used as directed.

fast
clean
gentle

champions



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Milk Champion
25295 Milk • 1210 Fat •
365 Days • 3X Milking

This top-producing Jersey is another in the long line of national champions milked with a De Laval. Marlu Milady was bred and is owned by Mr. M. Pollack, Marlu Farm, Lincroft, New Jersey. "She does not require hand milking after the De Laval is removed," says Mr. C. Hobson, manager. "And her udder is in beautiful shape, still strongly attached." Marlu Milady started her record at 8 years 11 months of age.

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Opinions, Brickbats, Bouquets . . .

These columns are open to the readers of Hoard's Dairyman for the expression of their opinion on any subject, whether radical or conservative, destructive or constructive, wise or foolish, critical or commendatory. Hoard's Dairyman assumes no responsibility for opinions expressed.

Don't fall for "stuff"

I have been a farmer all my life and I don't ask any help off of anyone. We don't fall for all the stuff like having your milk weighed and all that goes with it. If a man can't tell if a cow is good or not, he has no business in dairying.

I take notice most of the dairies that fold up are the ones that can't run their own business but have to depend on the county agent.

We do use a little fertilizer but no spray on my place, and we don't have any bugs to eat us up. It sure burned me up when I read your article, "Don't panic on chemicals." The cranberry farmers got what was coming to them. They asked for it.

Missouri V. S. AURAND

Know your rights

In the April 10 issue a letter, "Now a fall surplus," by Robert Kohlmeier, indicates the need for more legal information concerning the operation of our farmer cooperatives. Since the situation concerning the establishment of federal milk orders, as stated in the foregoing letter, is taking place at the present time, this problem is very timely.

There are two publications published by the United States Department of Agriculture that should be obtained in order that members can better understand their rights and the federal milk orders. These publications may be obtained by writing to the Superintendent of Documents, Government Printing Office, Washington 25, D.C., and asking for:

FCS Bulletin 10, "Legal phases of farmer cooperatives," the cost of which is $1.25, and

Miscellaneous Publication No. 732, "Federal milk marketing orders, their establishment, terms and operation," costing 25 cents.

We have no right crying to the government about our troubles if we don't have the guts to stand on our own back legs and run our business as it was set up under law for us to run and manage. Take the little time and money required to find out for yourself what rights you do have under the laws of our land as explained in these publications.

Ohio PAUL SCHULTZ

Disciplining the cow

I read with interest, "The 'meanest, most stubborn cow,' " (March 10). I also disagree with anyone stressing, "Never strike a cow."

A small stick or a green twig about the size of the thumb and two-feet long is most suitable to be used. Not too hard but enough to be felt and always over and around the head, across the face, on either side of the head, and over the ears —being careful of the eyes. A half dozen well-judged strokes like this will do more good than all the fighting during the entire life of the cow.

Never strike a cow across the back, or sides, or rump, or the ribs

—only makes bad matters worse. Remember, over the head only!

The oldtimers knew this while pulling oxen. When the going was rough and the load was heavy, the teamster walked beside his team or even in front, striking them over the heads with a small stick causing the team to pull all the more.

It is claimed the American domesticated bull is the most dangerous animal—wild or tame—on the face of the earth. But I have calculated they are about 75 per cent bluff. Give me two good farm dogs, a little one and a large one, the little one to nip the bull in the heels and the big one for the other 25 per cent bluff, making it an even 100 per cent. And I'll just come along with the business end of an old-fashioned pitchfork for good measure. Most any bull can be "treed" in this manner.

Never, under any circumstance, strike a horse or mule over the head. Do not use a stick but only a switch or whip. A whip, used only so lightly across the back, or ribs and rump aids in breaking a young colt.

The old-fashioned "buggy whip" used across the hock (that lower part of the ham) will make almost any boar sit up and take notice.

A folded newspaper to strike a dog in training is most adequate (not a Hoard's Dairyman).

In general, boys and girls do not need this outward application. They have hearing and understanding the brute creation does not have. They have comprehension of what we say and what we mean. The Bible says, "Bring them up in the nurture and admonition of the Lord."

Ohio FRANK MILLER

Like March 25 issue

We operate a 100-cow herd of Jerseys. It will not be news to you to know we find many articles of interest and value in Hoard's Dairyman. We would, however, like to especially commend you on two articles in your March 25 issue, which we felt were well worth while, "Dairy standards" and "Cost of credit."

Ontario, Canada J. W. WOLFE

"First real break"

The greatest thing that has happened in recent years to help the family-sized dairy farm become recognized for its efficiency and superiority in its products is the present watchdog campaign on right now to eliminate antibiotics in milk. It will bring to light many infractions and will greatly reduce the number of expansion programs among dairy farmers. It will also increase the number of skilled workers in dairy barns.

Milk is in the spotlight and is being watched from many angles in laboratories all over the nation. The man who thought he must milk 100 cows to show a profit and make full use of his hired help and machinery, where he previously milked only 35, is very apt to find that, although a hired hand may be a most faithful tractor driver, he may prove unsatisfactory in the technical work of preparing milk for laboratory analysis.

This, in turn, will increase milk sales because the psychological effect on dairymen will tend to greatly increase milk quality and its by-products which, in turn, will reflect on the milk-consuming public by a greater demand for the improved product.

This is the first real break we've had in many years. Let's make the most of it by putting on the market the finest milk possible.

Vermont BOB LYON

Don't sell to city investors

I am trying to get a start in dairy farming. My goal is to have a dairy farm of my own in the future. I would prefer to rent or have some arrangement whereby I could obtain machinery, cows, land or buildings.

Born and raised on a dairy farm, I was in 4-H club work, high school agriculture and have a degree in dairy husbandry from the University of Wisconsin.

In my family of four brothers I am the only one who is interested in dairy farming. We were raised on a dairy farm, and I do believe this is generally true in many other families in dairying regions. This will point out to many that the future of dairy farming will be greatly handicapped if the youth are not helped and encouraged to farm.

I believe I speak for a large group of young fellows who are leaving farms to take city jobs. There are many factory jobs which pay $2 or $3 an hour with other advantages—shorter hours, more benefits, health and accident insurance, and retirement plans.

On the farm the hours are long, hard, and seven days a week. Hence, when a fellow works on a farm he must like to work and like the outdoors. However, I know that if I don't find a farm to rent soon, I will get a job in the city. I think this situation is true elsewhere.

What will happen to the dairy farms in the future?

The farms will be grabbed up by big business, corporations, bankers, and so forth, who have not been trained in the agricultural field. Many dairy farmers have worked for years to build up their soil fertility and dairy herds. Then they sell their farms to investors who don't have a working knowledge of how to run a dairy farm and, in a matter of a few short years, the farm is unproductive and poorly equipped.

I say: Let's give the young fellows who are reared on the dairy farms and have the schooling a start now that times are hard. I would go so far as to say don't sell your farm to some banker who will put it in the Soil Bank. Instead, put a capable young man on your farm and you will have an income, a farm, and a stake in the future of dairy farming.

Wisconsin ROBERT SHUMAN

Six desirable qualities

The time has come when the breed registry associations must start giving serious thought to other "desirable qualities" besides type and production that make for a good cow, which qualities, as we have reason to believe, form part and parcel of the genetic capital of each individual animal.

Milking ability. As beautiful as a cow may be, if she is a "hard milker," she does not belong in a modern and efficient dairy barn. To the best of our knowledge, no methodic study has been made so far to trace strains transmitting easy milk letdown, or vice versa.

If the associations were to adopt a classification system similar to type rating, providing for "Poor, Fair, Good, and Very Good" milkers, families of notorious hand-strippers could be readily identi-

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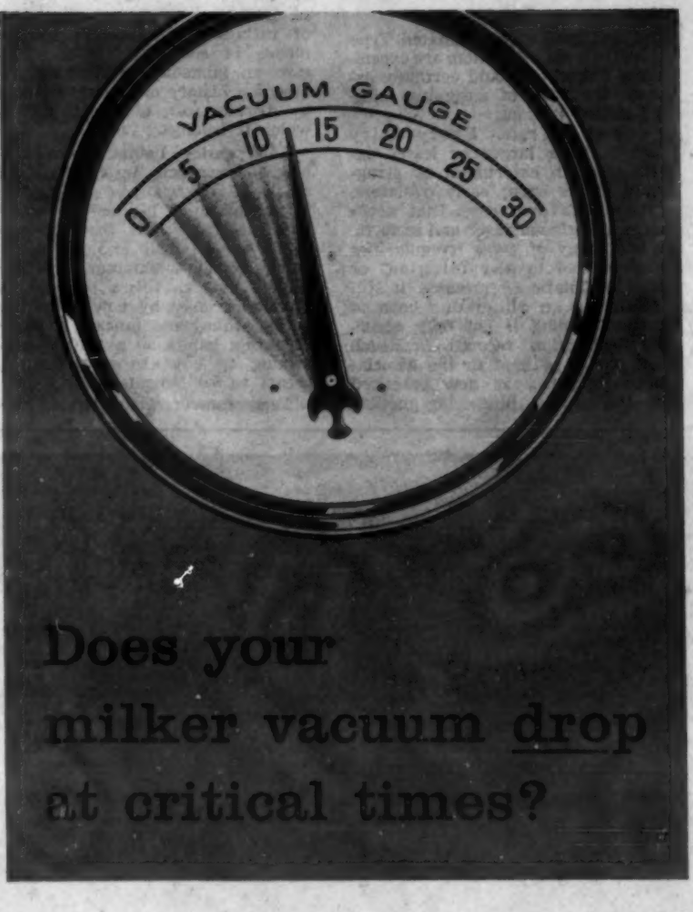

Does your milker vacuum drop at critical times?

De Laval "Rapid-Recovery" Vacuum Pump cuts vacuum drop-offs that cause slow, erratic milking. Every time you put a milker on, there is a drop in vacuum level. Loss of vacuum at this critical time means slower milking... erratic milking. Sometimes even teat cups will fall off. And the more units you have, the more serious the problem.

There will always be some vacuum decrease when you put a milker on. But for how long? That's important! Some pumps may take a half-minute to build vacuum up to the right level on your entire line. But with a De Laval Vacuum Pump, 4-blade rotary action assures *almost-immediate* vacuum recovery. You get more milk... faster, cleaner milking with less stripping. And De Laval can *prove* it. Try us. Ask your nearby De Laval Dealer for a free demonstration.

No matter what you need, count on De Laval to make it better

Bulk Coolers
—100 through 1,000 gallon capacities
New! Milk Transfer Unit
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(Continued from preceding page)

fied and gradually eliminated. Type classifiers, most of whom are experienced dairymen, could certainly assume the task of assigning milking-ability ratings.

Conception rate. Every dairy farmer, to a larger or lesser extent, has an assortment of strugglers in his barn; early ovulators, late ovulators, cows that never show heat, "nymphos," and so forth. While many of these irregularities may be due to physiological or even traumatic disturbance, it still would be an enormous boon to cattle breeding if not only accurate conception records for each cow would be kept in the associations (similarly as now practiced by the central processing method of DHIA), but an actual system of ratings devised which, by the means of certain symbols, would give an immediate picture of the breeding history of the animal and, by derivation, of the family to which it belongs.

Good eating habits. Our purebred associations insist that the shape of a cow's jaw and muzzle is indicative of her eating habits and, to some extent, they are certainly right. Still and all, every dairy farmer is familiar with the finicky cow that can be kept in production only by bowing to her eating whims and fancies. A study of eating habits as a feature pertaining to certain cow families seems to be indicated.

Temperament. Daughters of certain bulls show extreme nervousness and irritability while offspring of other bulls are quiet and easy to handle. Why is this so? An evaluation of the causes underlying the differences in temperament and a designation of the strains that show these features would be most welcome to the dairy community.

Longevity. Long, useful life is one of the most precious qualities of any dairy cow. Any breeder will always point with justifiable pride to the old cows milking in his herd. Yet, no record of this transmitting potential is kept in the associations.

We realize the difficulties of having breeders report disposal dates of their animals. A simple means of encouraging breeders to report deaths would be to declare legally dead all cows that are not reported as milking in a new lactation 20 months from the last freshening date, except if advised to the contrary. While this would obviously apply only to cows on test, it still would give a good picture of life expectancies.

Good "nicking." Experimental outcrossing to other families is on the order of the day of most any breeder. Yet, if there were a system where experiences gained by crossing families would be recorded (after all, even U.S. and Russian space scientists are now in the process of pooling their knowledge), an important element of uncertainty could be taken out from the hazards of cattle breeding. No other organization seems to be more qualified to evaluate the reported experience and to supply information on this rather delicate subject than the breed's association.

One of the larger bull studs has already taken steps towards a systematic tabulation of "good, acceptable, and poor" nicking combinations but their survey understandably refers only to bulls (and offspring of these bulls) in their own stud. What is needed is a much more generalized summary of observations of this problem within each breed.

It is a foregone conclusion that the officers and directors of the associations, upon reading these suggestions, will throw up their hands. We realize the clerical task of record keeping, complicated as it is already, would become infinitely more complicated by the addition of these tasks.

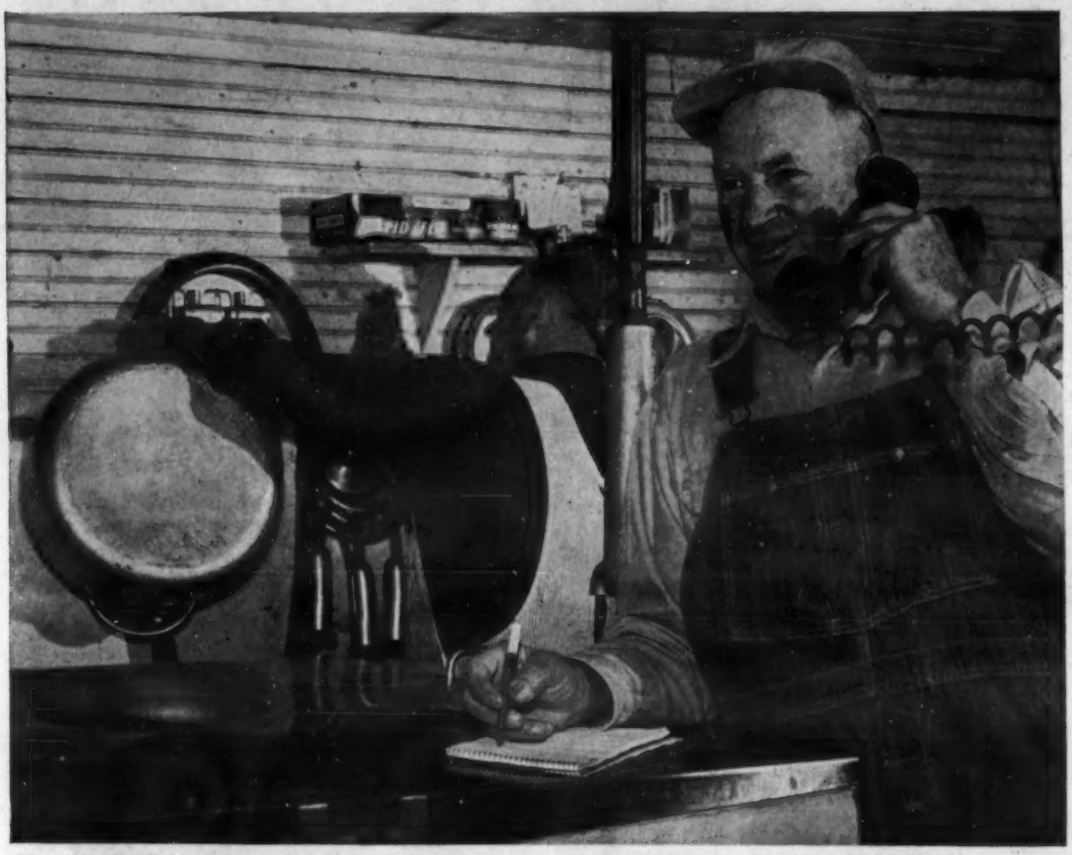
But this is the century of data processing, tabulating, and computing machines. Many purebred associations are already equipped with them. Others will be shortly.

Ten years ago anybody suggesting to supply the wealth of information that is being furnished today to every dairyman on his monthly DHIA central processing sheet would have been declared irremediably insane.

Ten years from today it will be a matter of course to inquire with the breed's association as to the probable milking ability, eating habits, temperament, and so forth to be expected from the result of a contemplated mating.

The time to start organizing the machinery for these important facets of breeding information is now.

New York — FRANCIS E. BRYAN



More than 2000 calls a year go through this milkroom telephone on the Sylvester Powell farm near Waseca, Minn.

MILKROOM TELEPHONE SAVES OVER 100 MILES OF WALKING

Mrs. Powell, shown using the living room phone, is glad to have a milkroom extension. Before it was put in she had to run to the barn several times a day to call one of the men to the telephone.

Every day Sylvester Powell ships a ton of milk from his dairy farm near Waseca, Minn. It takes 20 man-hours and 3 to 5 daily telephone calls.

Calls go to the inseminator, feed suppliers, the veterinarian and many others. Add incoming calls and the total is over 2000 a year.

These calls were once handled through the living room telephone. The men tracked to the house and through the kitchen—over 100 miles a year. Sometimes they postponed or forgot a call.

Now, an extension line to the milkroom takes the telephone to the men. That's one good reason for extension telephones on farms.

Look over your own farmstead with an eye to putting in extensions. Your local telephone manager will be glad to help.

BELL TELEPHONE SYSTEM

Budget breakdown

In the past, I have read in many publications about the price squeeze on farmers. This year I can read about it in my 1959 farm account book!

When the federal budget is presented, why don't they break it down so that city people can see that the agricultural part of the budget does not all go to farmers? Why don't they itemize that which goes into school lunch, that which is given or sold to under-developed nations, very seldom paid for?

Efficiency has been the oft-given advice of the Secretary of Agriculture. Farmers have greatly increased their efficiency in recent years. It's strange to me to note, however, that efficiency does not apparently extend into the Secretary's grain storage operation. Storage costs have gone up over three times under his administration. Apparently efficiency is not expected to apply to anyone but farmers.

Missouri — LESLIE WALLACE

NEW HORNFLY CONTROL THAT WORKS

Malathion, the same powerful phosphate insecticide you've been using in barns, can be dusted directly on your cows

Malathion has been accepted by the USDA for direct application on dairy cows. A handful of 4% or 5% malathion dust protects a cow from production-cutting hornflies up to 14 days. Simply whisk the dust over the animal's back and neck. It takes only about 12 seconds a cow . . . (4 minutes for a 20 cow herd)! It's as fast and easy as *that!*

Malathion gives you . . .

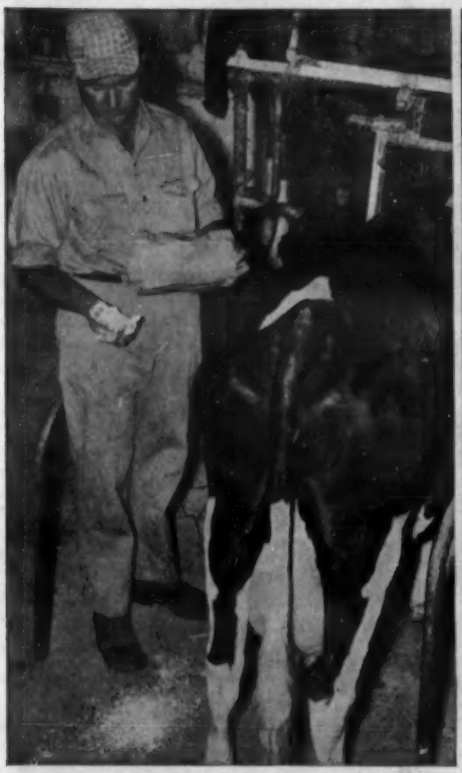
1. Power—Because malathion is a phosphate, it really knocks out hornflies . . . fast and thoroughly.

2. Safety-in-use—Malathion has *low* toxicity to man and animals. As a matter of fact it has already been used for years directly on hogs, beef animals, poultry . . . even household pets.

3. Economy—Four tablespoonfuls (about a handful) of malathion dust is all it takes to treat a cow. Compare the *cost* of malathion to any other method of hornfly control.

4. Easy-to-get—Malathion is *not* a trade name. Many well-known manufacturers offer 4% and 5% malathion dusts under their own brand names. Ask your dealer about the brands he stocks.

Note: Do not apply to your cows within 5 hours before milking or during milking. Don't use malathion directly on your animals in spray form. (Use sprays for area control of barn and stable flies, etc.) And, of course, don't allow the dust to get into water troughs. American Cyanamid Company, Agricultural Division, New York 20, N.Y.



7:29 AM *It's as easy as this: After morning milking take handful of malathion dust from bag, whisk over cow's back and neck. No need to work from both sides of animal.*

12 Seconds later . . . *Protected from hornflies, this cow won't lose part of her milk-producing capacity on pasture.*

2 Weeks later . . . *Even though the dust can no longer be seen, the cow is still protected from hornflies . . . still producing all the milk she's capable of producing. However, it's time to dust with malathion again for another 1½ days' control.*

CYANAMID
MALATHION
INSECTICIDES

CYANAMID SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE

even if you're well-to-do where can you outdo this?

Nowhere will you find a car more mindful of your needs than a new Chevy. Whatever model you pick, you'll find it gives you more room where you want more room (be it for baubles, baggage or beagles)—with a higher entrance height, wider seating and (in the case of wagons) wider cargo area than any other car in its field. Chevy's also the only leading low-priced car that gives you the comfort and quiet of Full Coil springs at all four wheels. Let your dealer show you all the ways Chevrolet aims to please without once losing sight of your budget!

Roomier Body by Fisher *with a lower and narrower transmission tunnel that gives more foot room.*

Pride-pleasing style *(you'll like the way it combines good looks with good sense, that convenient one-piece tailgate, for instance).*

New Economy Turbo-Fire V8 *(makes friends fast by getting up to 10% more miles on a gallon of regular).*

Widest choice of engines and transmissions *(24 combinations in all—to satisfy the most finicky driver).*

Hi-Thrift 6 *(built, of course, with Chevy's ever-faithful dependability).*

Coil springs at all 4 wheels *(with the extra cushioning of newly designed body mounts, you've never had it smoother than you do in Chevrolet).*

Quicker stopping Safety-Master brakes *(another important reason Chevy's the kind of friend you can count on).*

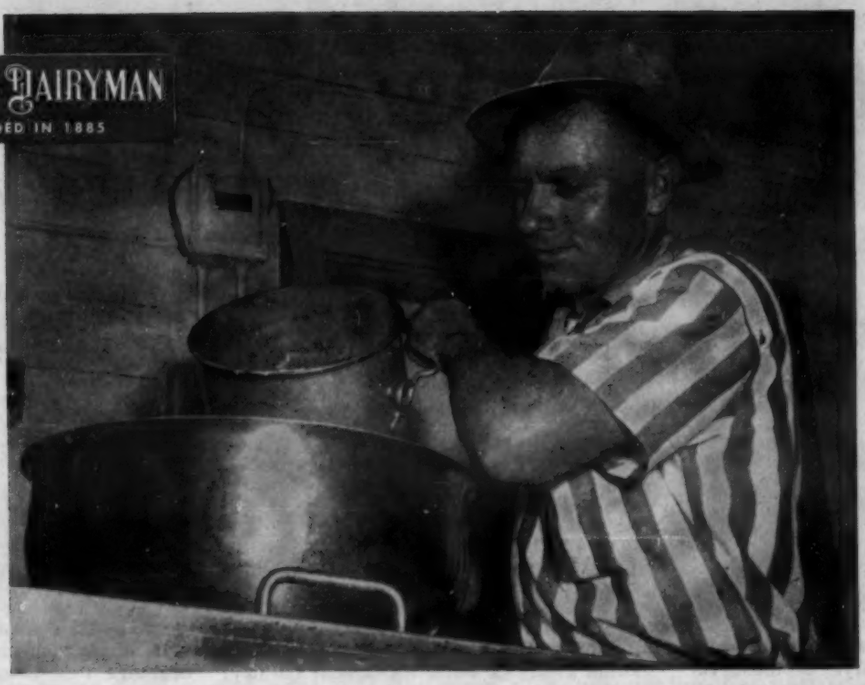
CHEVROLET

Chevrolet Division of General Motors, Detroit 2, Michigan.

there's no new car like a '60 Chevrolet. The 9-passenger Kingswood.

Air Conditioning—temperatures made to order—for all-weather comfort. Get a demonstration.

75 YEARS OF LEADERSHIP
HOARD'S DAIRYMAN
FOUNDED IN 1885



WELL SATISFIED with his bonus arrangement is Kenneth Peterson of Whitewater, Wis., who operates a dairy farm for G. R. Scheib. Besides base salary, he receives 10 per cent of gross milk check exceeding $500. He has operated under this arrangement for five years; is milking 32 cows.

Have you considered incentive payments?

Several different types are being used by New York dairymen. One of these may help you to keep or acquire a good man.

by R. S. Smith and G. L. Casler

AN INCENTIVE payment plan or a profit-sharing arrangement may help to keep a good hired man on the job and improve his work performance.

The better the hired man does his job, the more profit the dairyman realizes. But, the hired man's income is seldom tied to the job he does or to farm profit. Many farmers have considered deals which would reward the hired man for better performance and at the same time result in more income for the farmer.

A wide variety of incentive payment plans have been tried. Some have been successful, and some have not. Too often, incentive plans have been substituted for reasonable wages, good working conditions, or good living arrangements. These plans were bound to fail. In other cases, incentive plans have failed because they were too complicated to be understood by the hired man.

If you have a good man who can take some responsibility, you probably can work out an incentive plan which will fit your man and your business.

Based on physical production . . .

The simplest type of incentive plan is one based on physical production. On one western New York dairy farm the top man receives a basic wage plus 10 cents per hundredweight for all milk produced. The dairyman feels that the plan more than pays for itself in increased production and efficiency. The hired man has accepted greater responsibility and the increased workload resulting from an expanding herd. The hired man says that the plan has made him more interested in the business.

Here are some common variations of this simple plan:

Basic wages plus a per cent of milk check. This has merit, but it should be remembered that the hired man has no control over milk price.

Basic wages plus 25 to 50 cents per hundredweight above a minimum standard. The minimum standard can be based on so much milk per cow, per man, or per farm.

Basic wages plus 2 to 10 per cent of the difference between the milk check and the feed bill. This helps discourage overfeeding for high production.

Basic wages plus 4 to 10 per cent of the return over feed costs based on DHIA records. All feed costs are considered, instead of just purchased feed.

There are other incentive plans based on physical performance which are not tied specifically to milk production. They include incentive payments based on bacteria count below a certain standard, or on the number of cows safe in calf within a specified time period following freshening.

Most of these plans have the advantages of being simple, easy to compute and understand, and directly related to items the hired man can help control.

They may have the disadvantage of concentrating the man's attention on physical production to the extent that they encourage uneconomical practices such as overfeeding. They also may cause the man to lose interest in the field work or farm equipment.

These plans may hamper the farmer in making management decisions. For example, if the hired man's pay is based on milk production, he may resent sales of cull cows or breeding stock.

Despite these possible disadvantages, simple plans based on milk production are the best kind in most cases where farmer and hired man have not had previous experience with incentive payment plans.

Becomes livestock owner . . .

If you have a man who is determined to farm for himself in the future, you can probably keep him with you longer and make him a better man by allowing him to build up equity in livestock. One way to do it is to pay him a basic wage and allow him to raise a specified number of calves each year. Another method is to help him gain ownership of a small herd of his own.

One New York dairyman has allowed his man to raise five calves a year for the past several years. When the heifers freshen they are moved to a small barn on a neighboring farm and the hired man, with the help of his family, does his chores after milking is finished in the main barn. The man buys hay and silage from the farmer and is still paid basic wage.

The hired man has been able to build a herd of 12 milkers and 10 heifers in a five-year period. He plans to farm on his own in a year or two. The plan has enabled the farmer to keep a good man longer than he would otherwise have been able to.

A much more simple and common livestock ownership plan allows the hired man to raise 2 to 5 heifers each year in the farmer's herd. When these animals freshen, they are sold, and the hired man gets the income. If they remain in the herd the milk income goes to the farmer.

The advantages of a livestock ownership plan are that it helps a good man to acquire savings towards farming on his own, and the cash cost to the farmer is small. The disadvantage is that it is very difficult to evaluate. The farmer seldom takes the trouble to figure what the true cost is, and the hired man seldom realizes how much he is gaining under the plan.

Based on profit sharing . . .

Hired men who share in net farm profit should have greater interest in helping to build a better all-around farm business. There are many ways of calculating profit. Any method which is sound is not very simple.

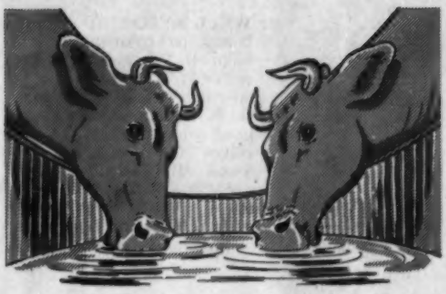
Profit can be defined as net taxable income. This avoids the necessity of making a separate calculation, but taxable income is often a poor measure of actual profit. Calculation of labor income as done by farm management specialists is *(Turn to page 635)*

The authors are professor of farm management and an extension economist, respectively, at Cornell University.

Farm Flashes . . . .

Seasonal reminders and research notes for the dairyman

COWS NEED LOTS OF WATER



An interesting investigation at the Hannah Dairy Research Institute, Ayr, Scotland, reveals that grazing cows on wet days drink little or no water, but on drier, warmer days, some will drink more than 12 gallons.

The average amount consumed daily during the investigation was found to be about 6 gallons for cows with a 3.6-gallon milk yield. Most of the animals drank four times a day. Up to 4½ gallons could be taken in one drink at a rate of 1 pound of water a second.

FEED ADDITIVES CONTROL FLIES?

Dairymen may some day control houseflies and other insects by feeding an additive to dairy cattle.

Two Michigan State University entomologists found that a microorganism called Bacillus thuringiensis Berliner controlled housefly larvae when placed directly on animal droppings. The same organism has proven effective in controlling worms on several crops.

The scientists raised a question, "Why not feed the tiny larvae creature to livestock?" Their reasoning is that it might pass right through the digestive tract and control insect larvae in the droppings.

To date the technique has been tried on quail and white mice. In both cases, enough bacillus passed through to control houseflies.

The researchers feel that this approach may eventually pave the way to safer, more effective pesticides. They plan to try it on several types of livestock.

MAY WEAN CALVES EARLIER

According to results of University of Minnesota feeding trials, it may be possible to wean dairy calves earlier than usual.

In tests, the calves were taken off all liquid feeds at 28 days of age. They continued to grow well and stayed as healthy as would have been expected if they had stayed on milk or milk replacer. They had gained about a half pound per day up to weaning, and by 6 weeks of age were averaging about a pound.

Most dairymen wean calves between 6 and 8 weeks of age, even though they usually are eating quite a bit of dry feed and hay by then.

The calves in the early-weaning trials were fed 8 pounds milk daily until 4 days of age, and 4 pounds milk and 4.4 pounds of liquid milk replacer from then until 10 days old. From 11 days of age until weaning at 28 days, the calves received 11 pounds of liquid milk replacer each day, in addition to dry calf starter and alfalfa hay. Starting the 29th day, they received no liquids except water.

Early weaning could mean more economical calf feeding and would be much more convenient for most dairymen.

TO AVOID HEAT EXHAUSTION

The National Safety Council has issued the following recommendations for summer safety:

Avoid too much exposure to direct sunlight and wear a hat out-of-doors.

Avoid over-exertion, particularly in the early part of a heat wave.

Wear light, porous, loose-fitting clothing.

Increase the use of salt in food and use salt tablets or salt in drinking water.

Drink plenty of water throughout the day; avoid ice water and alcohol.

Get plenty of rest and bathe regularly.

Heat exhaustion and sunstroke are different, although both result from over-exposure to high external heat. With heat exhaustion the victim's skin is cold, while with sunstroke the skin is hot and dry.

In applying first aid treatment to a person suffering from heat sickness, keep in mind this simple rule: If the patient is cold, make him warm; if he is hot, make him cool.

If you will put into practice the simple precautions outlined above, you will have more energy to do a good job and will be less susceptible to heat exhaustion and sunstroke.

SOME EGGS LARGE, OTHERS SMALL

It is reported that the largest chicken egg on record weighed a little more than 11 ounces, 5½ times the normal weight of 2 ounces. It is on display in the Museum of Curiosities, Pasteur Institute, Paris, France.

According to a Rutgers University poultryman, abnormally large eggs generally are produced during periods of heavy production. Smaller dwarf eggs usually are laid in spring or by pullets coming into production.

The most common variation in the internal condition of eggs is the double yolk. They are most often laid by pullets coming into production and they occur about once in every 500 to 600 eggs produced.

It is estimated that triple-yolked eggs are laid at the rate of about 1 out of every 5,000 to 6,000 eggs.

WATCH FOR SALT POISONING

It will occur when animals are deprived of salt for a long time and then allowed free access to an abundant supply. Also, too much salt and not enough water will cause it.

Salt is essential in all animal diets, and should be provided free-choice as well as being included in the grain mixtures for dairy cattle. If your water supply is reduced or cut off, be prepared for trouble.

The first symptoms usually noticed in salt poisoning are hypersensitivity to touch, loss of appetite, marked redness and dryness of mucous membranes of the mouth, and loss of coordination. Paralysis and death may follow.

The best guarantee against salt poisoning is to provide plenty of water. If it should hit your stock, call your veterinarian.

VITAMIN C CUTS EGG BREAKAGE

Research has shown that adding a small amount of vitamin C (ascorbic acid) to the feed of laying hens in summer results in fewer broken and cracked eggs.

Experiments conducted at Colorado State University show that as little as one ounce of ascorbic acid in a ton of feed will increase egg shell thickness and cut breakage losses in half.

Hot weather normally causes hens to slow down their body activity. They eat less feed so they have less calcium in their systems to use for egg shell formation. Thin egg shells result in high breakage losses.

It is reported that in Illinois alone, egg breakage now causes more than $1 million loss each year. Treating feed with vitamin C could materially reduce this loss.

Too much ascorbic acid can have harmful effects on the birds. Therefore, it is important that no more than one ounce of vitamin C be mixed with a ton of feed. It is further pointed out that since egg shells normally are strong enough in winter, there is no need to feed additional ascorbic acid in winter months.

BENEFITS DUE DISABLED FARMERS

Self-employed farmers and ranchers were included in social security for the first time in 1955, making October 1959, the earliest date those with no prior coverage could have earned the required 20 quarters (about 5 years) of social security credit to qualify for the disability benefits.

Since the law also provided for a six-month "waiting period" after requirements for eligibility are met before payments actually begin, the first checks should have gone out shortly after May 1.

To qualify for monthly disability benefits, a worker or self-employed person's disability must be such as to prevent him from doing any substantial gainful work, and the condition must be expected to continue indefinitely.

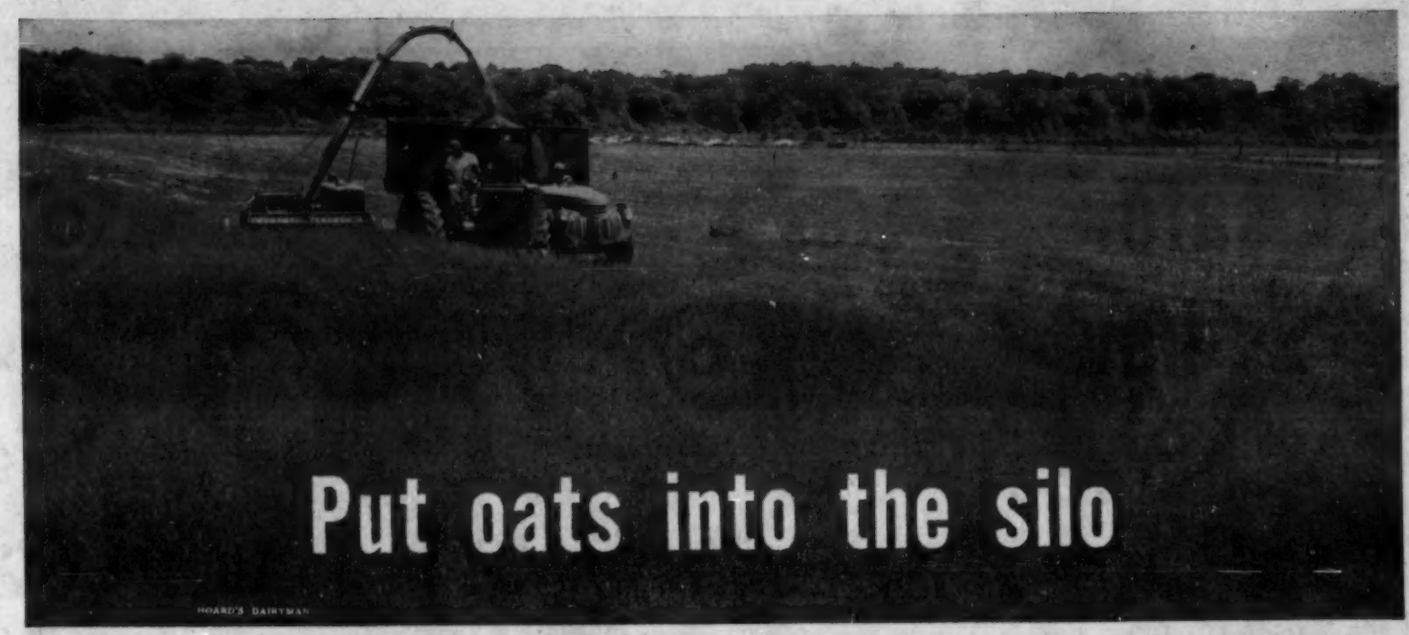
Farmers and others under social security who are severely disabled should visit their nearest social security office, if they have not already done so.

75 years ago...

It requires rigid care and close inspection to keep dairy pails, cans, and other utensils clean. In hot weather, in particular, is this essentially necessary for it is highly important not only to preserve purity of flavor but as well to retard the souring of milk as long as possible in order that we may get all the cream there is in the milk.

This latter principle will be made clear when it is understood that before milk sours it commences to thicken and that, at that point, the cream ceases to rise no matter how much there may be in the milk.

W. D. Hoard



Put oats into the silo

Use taller, leafier, and later varieties sown at heavier rates. For best results, ensile at late milk or early dough stage; wilt to 70 per cent moisture content.

by F. V. Burcalow

GOOD oat silage is good feed. More TDN is produced from an acre of oats handled as silage than when allowed to mature and harvested for grain. This is not the reason, however, why farmers are harvesting an ever-increasing acreage for silage rather than grain.

A much better stand of grasses and legumes results when the nurse crop of oats is removed early for silage. This eliminates loss of stands caused by lodged grain or heavy growths of volunteer grain following harvest. These losses are costly. There is the money spent for grass and legume seed that doesn't grow. Of even greater concern is the loss of the following year's production of forage crops for pasture, hay, silage, or green feeding. Farm plans are badly upset when these losses of stands occur.

"Companion" crop is a better designation than "nurse" crop for oats, but even so it should be removed early for best results.

It is estimated that 2,340,000 acres of oats are seeded down in Wisconsin each year. Seeding failures on 10 to 30 per cent of this acreage are not at all uncommon. Weak or thin stands may occur on another 10 to 20 per cent of the acreage and these stands will not be as productive or remain as long as good, strong stands.

Seeding losses run high . . .

Seed costs for forage grasses and legumes will vary from farm to farm, but a very conservative average would be $5 per acre. This can run into a considerable dollar loss on the average farm.

A 10 per cent loss of new seedings on a state basis would amount to well over a million dollars, for a 20 per cent loss it would mean a dollar loss of well over $2 million. The indirect losses from thin stands of short duration and jeopardized feed supplies can amount to much greater amounts.

The elimination of these dollar losses, reduced feed supplies, and upset farming plans are the reasons more farmers are thinking in terms of small grains for silage rather than for grain and straw.

The author is an extension agronomist at the University of Wisconsin.

Small grains may lodge because of tall or weak straws. Disease may result in weak straw and lodging. Winds, or wind and rain may be the cause, or it could be due to excessive or unbalanced fertility. It may be the result of a combination of two or more causes.

Plant breeders are constantly improving straw strength and disease resistance so that the crop will be better able to withstand wind damage. Also, varieties are being developed that will stand up better under high levels of fertility. But, the fact still remains that too much lodging occurs before the grain is mature. There is little the farmer can do to prevent it except to remove the crop early for silage and before the lodging can damage the new seeding.

Which variety for silage?

For high-quality silage the crop will be harvested while it is still green and leafy and the grain is in the milk or very, very early dough stage. Because the crop will be removed early, you can use a later and taller variety and a heavier rate of seeding than you would for grain. Much work is being done in some states to develop forage types of small grains. Some very leafy types are resulting and reports of 10 to 12 tons of silage per acre are not uncommon.

Instead of sowing the conventional rate of 2 or 2½ bushels per acre recommended for grain, 3 to 4 bushel rates for silage might result in a better-quality silage.

There would be merit in having several forage varieties available that would have a fairly wide range in maturity in order to facilitate harvesting at the right stage of growth. Farmers have learned that there is only a very short period, several days at the most, when the crop is at an ideal stage of growth for high-quality silage. Several varieties with different maturities would alleviate some of this problem.

Harvest at early dough stage . . .

Research workers at Wisconsin state, "92 per cent of the total yield of protein, 89 per cent of the ash, 94 per cent of the P, and 85 per cent of the Ca had been produced by the early dough stage." Several other investigators have indicated that the best stage of growth to harvest oats for silage is that approaching early dough.

Evidence indicates that oats, like other grasses, make the best ensilage when ensiled at approximately 70 per cent moisture. Many oats when in the late milk or early dough stage may contain upwards to 80 per cent moisture or more. This means that some wilting is necessary to prevent or materially reduce the seepage from the silo which means a loss in nutrients. Whether this wilting period is a couple of hours or longer will be dependent upon prevailing weather and moisture conditions.

Be ready to ensile . . .

If you are planning on using oats for silage, be sure you are all set to go when the crop reaches the late milk or early dough stage. This situation can change very rapidly and a few days delay may mean a much lower quality of silage. The few complaints we have received on oat silage as a feed have occurred when the crop was ensiled when too mature. Such oat silage has the appearance and odor of wet straw and apparently is very unpalatable to livestock. In addition, such silage is very subject to molds.

Preservatives are not necessary if the crop is ensiled at the right stage of growth and at close to 70 per cent moisture. You should not depend on preservatives to produce good-quality silage if stage of maturity and per cent moisture are disregarded.

Usually, oat silage will be higher in the percentage of protein than corn silage, but lower than that of legume grass silage. It can be a very palatable and nutritious source of feed, if the job is done correctly.

A survey on oat silage in Wisconsin in 1957 indicated an average yield of 7 tons of silage per acre with an average total protein of 9.6 per cent on a dry matter basis. The TDN in this 7 tons would be equivalent to the TDN in 90 bushels of oats harvested for grain. Most of the farmers had not planned on using the oats for silage when the crop was sown. With taller and later varieties and heavier rates of sowing, yields of 10 to 12 tons could be expected. **THE END**

Make it a safe hay harvest!

The majority of haying accidents are not fatal, but a day lost as a result of cuts and bruises can prove costly, especially during this busy season.

by Kenneth V. Fiske

CRANK AN AUXILIARY ENGINE by pulling up only; make certain that you are free from all ropes, pulleys, or chains. Be sure that the clutch is out of gear.

HAY is this country's most universally-grown crop. In spite of this, hay is still harvested by a variety of methods involving innumerable tools and machines. Each involves specific hazards to farm workers.

The power-take-off mower is designed to cut. Hay, brush, or fingers make little difference to it. To be on the safe side, make certain the cutter bar is sharp and in proper alignment. This will prevent unnecessary clogging. Keep all PTO shields in place and if the mower is hydraulically lifted, make certain all hose connections are secure.

When it's necessary to leave the tractor seat in order to unclog the cutter bar, never leave the power on or shut it off and leave the tractor in gear. Under the latter condition any slight rolling motion of the tractor might cause the cutter bar to operate. Always shut off the power, put the gear lever in neutral, and set the brakes.

The author is an agricultural engineer in the farm division of the National Safety Council.

While the hay rake, power or ground drive, is involved in the smallest number of hay harvest accidents, they still occur.

During last year's haying season a Midwestern dairy farmer was found alive but severely mangled as the result of an accident involving the hay rake. On a windy day his rake wrapped with hay and in an effort to unclog the rake it was necessary to leave the tractor platform. The equipment had been stopped on an incline and when the tractor rolled forward, he was cut and bruised by the rotating teeth and run over by the caster wheels.

Shut off balers and choppers . . .

The baler and the forage chopper are two of the most widely-used pieces of hay harvest equipment that save labor in the handling of the crop. Time is important for the hay crop is at its prime for only a short time.

In spite of all that you might do to prevent overloading a baler, under improper operating conditions it may clog, making it necessary to clean out the clogged knife, bale chamber, or packing arms. Always shut off the PTO and the tractor or auxiliary engine before leaving the tractor seat. Make certain that all clothing is in good repair and cannot catch sharp projections. Avoid gloves with extra thumbs or floppy lacings.

After unclogging the machine, turn it over slowly by hand to make certain all clogged material has been cleared out and then stand clear before putting it back into operation.

The forage chopper like the mower is meant to cut. Make certain that the knives are kept sharp and in proper alignment. Also, springs, belts, and chains should be kept in proper adjustment and replaced when worn.

Both the baler and the chopper have large numbers of rotating pulleys, shafts, chains, and belts. Keep the safety shields in place and observe the manufacturer's warning decals.

The farm wagon is used in transporting the hay crop from the field to the storage area—

LOCK GUARDS and shields securely in place. Be sure to observe manufacturer's warning decals.

A WORK BREAK on the farm is just as important as it is in industry. Fatigue contributes to accidents. It is the responsibility of the farm wife to see that such breaks are taken regularly.

BEFORE CLEANING CLOGGED BALER, be sure to shut off power-take-off and tractor engine. Avoid wearing ragged work clothing or extra-thumb gloves that might catch on sharp projections.

barn, silo, or drier. The farm wagon, according to a recent state farm accident survey, ranked third as a major cause of farm machinery accidents. How did these occur? Falling from the wagon, being run over by the wagon, or being crushed between the wagon and implement to which it was being hitched are but a few of the causes.

When unhitching and hitching a wagon, stand to one side of the pole; don't straddle it. Block the wagon wheels before hitching and make certain the tractor operator can see you. Remember to lift with your legs, not your back, and above all, remember that hitching and unhitching is not a job for children; nor is a wagon a safe place to ride.

Moving wagons on a public road and highways is a dangerous but sometimes a necessary harvest job. Never let children or adults ride on top of a load of hay.

Highway motorists should be warned of moving farm vehicles on the highway by use of flags in the daytime and with flashing red lights at night. If visibility is limited by hills, curves, obstructions, or driveway entrances, post flagmen at proper places to insure the safety of the tractor operator. Use highways only when absolutely necessary and stay on the shoulder of the road wherever possible.

Elevators are cripplers . . .

As an agency involved in farm accidents at hay harvest time, the farm elevator has moved from the point of obscurity to that of ranking fourth. Many elevators being used during hay season were not designed to handle the loads they are subjected to. The collapse of farm elevators has been a leading cause of these accidents.

In order to avoid elevator accidents, make certain the elevator is set level on firm ground and placed so that unloading is convenient and saves lifting. Be sure elevated bales can clear beams, doors, and other obstructions, for falling bales can cause severe injury. Do not load the machine beyond its capacity as a ladder to reach the hay mow. Do not climb up the flights of the elevator chain. This weakens their attachments and results in time lost or unnecessary accidents.

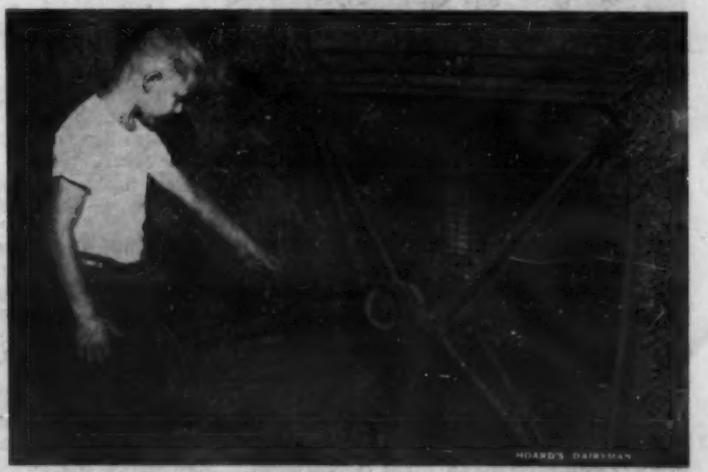
Farm safety is a family affair. It is the responsibility of the farm housewife to remember that fatigue contributes to accidents. Work breaks definitely tend to reduce dangerous fatigue during the hay season. Since the men in the field won't take a break unless it is offered to them, it's up to the wife to see that they do.

These breaks give the entire family a chance to get together and provide an opportunity for the youngsters to observe farming operations while under the supervision of the adults.

The majority of hay harvest accidents are of the non-fatal variety but a day lost from a cut or a bruise can be more important to farm income than the doctor bill rendered as a result of a minor accident.

Take time to be safe, and remember, **farm safety is always in season.** **THE END**

DO NOT ALLOW RIDERS on hay loads. When highway travel is necessary, use flags during the day and flashing red lights after dark.



DRIVE BELTS can be dangerous when turning at a high rate of speed. Cover with guards; keep in proper adjustment; replace when worn.

AUTOMATION pays on this Southern dairy farm

AUTHOR DISCUSSES AUTOMATION with the Mitchell Brothers in their herringbone milking parlor. Electricity does practically all of the work involving the dairy herd.

You can buy manpower a lot cheaper by the kilowatt hour than you can using day labor, and it's so much more dependable.

by W. H. Craven, Jr.

ELECTRONIC BRAIN that operates automatic mix-mill is examined by Rudolph Mitchell. Mixing own dairy ration saves over $1,800 a year.

QUARTER-HORSEPOWER motor carries mixed feed from mix-mill to small storage bin where it is augered overhead to stalls in milking parlor.

THE push button has come into its own on at least one South Carolina dairy farm. It has brought full automation to reality and points the way out of the tight labor market for the dairy farmer.

Mitchell Brothers' Dairy in Saluda County has become one of the first "automated" dairy farms in the South. By the use of 13 electric motors (the largest is only 2 horsepower), Rudolph and Frank Mitchell are saving about 1,800 hours of labor a year in the milking parlor and barn, plus an additional 600 hours in feeding silage the automated way. Everything that can be worked by electricity has a motor hitched to it.

The operation is set up pretty much on an assembly line designed by Clemson College extension specialists.

Silage feeding was the first chore to feel the hand of automation. Mitchell Brothers installed a 70-foot auger at the bottom of their two silos to carry the silage from the chutes to the cows. This saves them about 600 hours each year. The only manual labor required now is throwing down the silage from the silo, and they hope to install a silage unloader in the silo in the near future.

The milking operation was the next to be regeared to automation. The old 12-stanchion barn was converted into a 10-stall herringbone parlor. The stepped-up milking operation with 5 milkers against the old way of using 4 and the addition of a pipeline saves the brothers another 1,800 hours per year. They are now able to milk their 45 Guernsey cows in an hour.

Automatic feed grinder . . .

Automatic feed manufacturing right on the farm has been the real money saver for these men!

Next to the neat, white, concrete block milking barn are three glistening steel bins. One of these holds 1,350 bushels of oats and another a like amount of shelled corn. The third bin stores the concentrates used in the mix.

Each of these bins is connected by an auger to the feed mill in the barn and corn, oats, and concentrate are automatically moved to the mill. It is automatically weighed in the correct amounts and ground and mixed by the mix-mill. The mill, too, is automatic and has a time switch on it so that it grinds feed as it is needed. Incidentally, the mix-mill is powered by the largest motor on the farm. It has a capacity of 1,000 pounds an hour.

Rudolph Mitchell says he is manufacturing an all-grain feed for $51.83 per ton. That's a saving of $24.17 per ton since they had been paying $76 per ton. They use a mixture consisting of 900 pounds of oats, 600 pounds of corn, and 500 pounds of a 36 per cent concentrate.

The oats and corn are brought at harvest time from grain farmers in nearby areas. With the use of a drier connected to the storage bins, they are able to buy grain from the combine and do their own drying. The storage bins are capable of holding a year's supply of corn and oats. The concentrate is bought in bulk in five-ton lots.

A profitable investment . . .

The Mitchells figure they will use 81 tons of dairy feed in their operation each year. With a savings of $24.17 per ton, they are saving more than $1,950 a year. Of course, depreciation, interest, and electricity must be deducted from that savings.

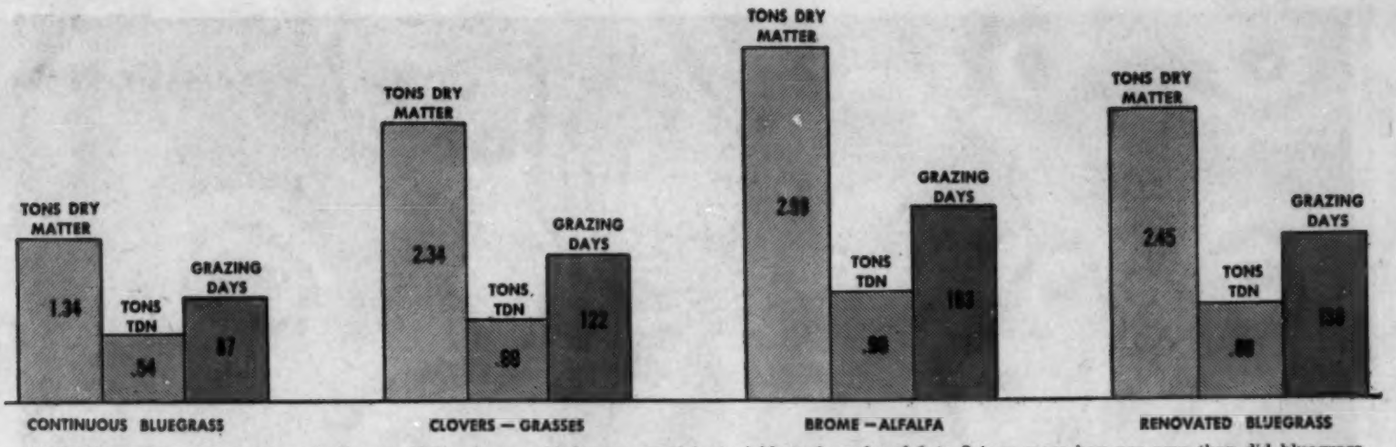
But, after these are deducted how do they stand as far as a good investment in this labor-saving equipment? The bins were installed for $2,100. The automatic mix-mill added another $900 to the investment. So, for $3,000 these brothers were in the feed manufacturing business right in their own dairy barn. They have set up a depreciation schedule on the bins for 20 years and on the mix-mill for 10 years. On this basis $130 would have to be deducted from the $1,950.

Rudolph and Frank say there are other advantages to automatic feed manufacturing on the farm. They know what goes in their dairy feed. The feed is mixed just minutes before it is augered, with overhead augers, from the feed room to the cow. They never have any old or molded feed.

By storing the grains and concentrate in steel bins, they have done away with the rat problem in the feed room. This type feed has been used for a year now and the Mitchells report that their milk production has held at the same level as with the all-grain feed they were purchasing prior to installing the automated equipment.

Is it good business to invest large sums of money to install the automatic equipment available to the dairyman today? The Mitchells say yes! And, as Rudolph Mitchell says, "You can buy manpower a lot cheaper by the kilowatt hour than you can by using day labor and it's more dependable." **THE END**

The author is a county agricultural agent in Saluda County, South Carolina.



COMPARE RESULTS of research. Brome-alfalfa also provided more consistent yields and produced 1 to 2 tons more hay per acre than did bluegrass.

What can pastures do for you?

They can increase milk production per cow and per man. On a well-managed pasture, it is possible to get 5,000 pounds of milk per acre.

by Julian M. Sund

HAVE you wondered if you should increase the size of your herd to offset lower prices. This is an obvious way of keeping your gross income at the desired level. Is there another way? There is.

Increased production per cow and lower feed costs may be better than adding more cows.

We can increase production per cow by good breeding but results are often slow. It can be accomplished faster with better quality pasture or hay.

With high yielding, good-quality pasture or hay you will buy less expensive feed; you might seed and work fewer acres; and you work less hours.

This cannot be done with permanent bluegrass pasture, however.

These conclusions are based on many pasture studies conducted at Wisconsin and in other Midwest states. They are based particularly on a study just completed.

On land which could be plowed, we compared permanent bluegrass with a rotation of corn-oats-four years of brome grass-alfalfa pasture.

Study began in 1944 . . .

Each year for 12 years a new herd of 20-month-old dairy heifers cooperated with us on the South Hill Farm at Madison to compare rotation cropping schemes with permanent bluegrass. The 24 acres used had been in bluegrass sod for nine years when the study started in 1944.

One field was left in continuous bluegrass and grazed each year for 12 years.

One field was renovated (dug, not plowed) with alfalfa and red clover in 1940 and 1951.

The other two bluegrass fields were put under 2 six-year rotations of corn-oats-four years pasture. One was seeded down with brome grass-alfalfa. The other was seeded with red clover, alsike clover, white clover, timothy, red top, and bluegrass. So, in 12 years both had 2 crops of corn, 2 crops of oats, and were grazed for 8 years.

No fertilizer was used on any of these fields. We didn't think it would be fair to put fertilizer on top of bluegrass sod and work it into the soil for the rotation crops. In those years, soil scientists believed that fertilizers put on top of the ground were not as good as those plowed down.

We now know that top-dressing a sod can be very worth while. If we had fertilized, the yields would have been larger.

The cows were grazed continuously on all four fields each summer. Daily strip-grazing does not help on unfertilized bluegrass so we didn't think we should favor the clover-grass seeding or the brome-alfalfa with strip-grazing (moving to a new area every day).

We measured the production in three ways:

1. Using wire cages, we found the yield of dry matter (tons of hay per acre).
2. Keeping a record of the number of cows on each acre, we got the grazing days.
3. Weighing the cows we found their gain.

Using all these figures we found the pounds of total digestible nutrients (T.D.N.) per acre. T.D.N. measures the feed value of a crop.

Brome-alfalfa best . . .

You can see in the chart above that brome-alfalfa was best and bluegrass was poorest.

The production of bluegrass varied a lot from year to year. One year it gave only 39 days of grazing. Brome-alfalfa was more uniform from year to year. The grazing days each year on brome-alfalfa were much like the average figure in the table. The yield of dry matter, as hay, in **tons per acre** compared like this:

	Year in rotation			
	First	Second	Third	Fourth
Brome-alfalfa	3.02	3.19	3.03	2.66
Bluegrass	2.03	1.33	0.96	1.03

The yield of bluegrass depends more on the weather than the yield of brome-alfalfa. Often bluegrass quits at the end of June but brome-alfalfa keeps on growing. The cows quit eating bluegrass when it is headed out. They will eat brome grass even when it is headed out and it heads out later than bluegrass.

A mixture of brome-alfalfa is better in many other ways. It can be used for pasture, hay, silage, or green feeding. Bluegrass can be pastured only. Brome-alfalfa will add more organic matter to the soil than will bluegrass. Brome-alfalfa will yield more than bluegrass fertilized with nitrogen.

On marsh-border soil on the Hoard's Dairyman farm, bluegrass yields increased 80 per cent with the application of 300 pounds of ammonium nitrate, whereas brome-alfalfa produced 280 per cent as much as the unfertilized bluegrass.

Bottom-land pasture . . .

Have you ever wondered if you should put corn up on the hills and brome-alfalfa pasture on the corn land? I'm sure you have thought of it. But, if you are like many others, you will grow the corn year after year on the better, more fertile bottom land. The pastures will remain on poorer, hillier land.

I have seen cattle up on the steep, barren hillsides even in July and August. Exercise is the only thing they get up there. This is deplorable and unforgivable.

Usually, down below the hillsides, you see tall corn on the bottom land, obviously fertilized and well cared for.

Some of these hillsides are so steep they should be growing trees. Others can be renovated and made more productive. Some less steep hillsides do have brome-alfalfa on them but never a crop of corn. They should have.

The organic matter put in the soil by sod crops, even bluegrass, can help produce more corn. A corn crop on these grasslands can add a lot to the total production.

In the South Hill study, corn grown in 1944 on 2 fields which had been in bluegrass for 9 years produced 18.3 and 16.3 tons of corn silage per acre. The state average corn silage yield was 10 tons. This was done without fertilizer and a plant population of only 12,000 plants per acre. Organic matter did it.

After the first 6-year rotation on these fields, corn was grown again in 1950. No fertilizer was used and again 12,000 plants per acre were planted. The only difference between the 2 fields in 1950 was the kind of sod each had during the previous 4 years. One had bluegrass from the clovers-grasses seeding. The other field had brome-alfalfa. This time the brome-alfalfa *(Turn to page 642)*

The author, as an assistant professor of agronomy, specializes in pasture research at the University of Wisconsin.

Chops with the biggest...priced

McCormick No.15 owners report amazing 40-ton-an-hour chopping in heavy corn!

When the new McCormick® No. 15 field harvester came out last fall, hundreds of livestock feeders bought it because the price was low! But they got a happy surprise when they found it could chop 40 tons of silage an hour in heavy corn . . . 30 tons an hour in hay!

Just a little figuring shows that the McCormick No. 15 gives value-minded farmers a big 50% bonus in chopping power over any other rig of the *same* price. In fact, the No. 15 actually outdoes several well-known choppers costing $1,000 more money!

With its 6-knife, lawn-mower-type head, the rugged No. 15 slices the crop 6,000 times every minute. This "hungry" cutter head is fed by any of three quick-change harvesting units: (1) 60-inch cutter bar, (2) row-crop unit, (3) 54-inch hay pickup. Each unit is designed to force-feed at big-tonnage rates.

Now, with *new 9-knife cutter head,* the No. 15 gives you over *twice* the chopping power of any other low-price chopper.

You're in for a surprise when you try the No. 15. Watch it work! See for yourself that a chopper priced with the lowest can chop with the biggest to lower your forage feeding costs.

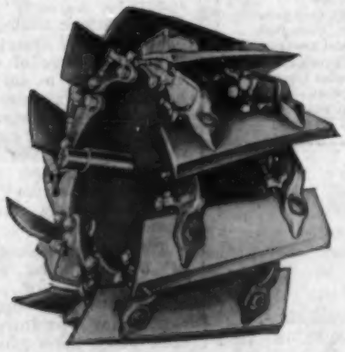
See your IH dealer. Set a date for him to bring a McCormick field harvester to your farm. Ask about the Income Purchase Plan that lets you buy as you need . . . pay as you profit. Stop in today!

King of all flywheel-type field harvesters—McCormick No. 361 It eats through heavy corn at a 45-ton-an-hour pace . . . chops 35 tons of grass silage in only 60 minutes! Crop is force-fed into heavyweight, 44-inch-diameter cutter head, then chopped with tremendous slice-through power. Quick-mounted 72-inch cutter bar, row unit, and hay pickup equip it for any crop.

New McCormick No. 5 flail-type chopper—low-cost way to chop forage for feedlot or silo! Tandem-mounted knives—24 more than on other flail-type rigs—also turn faster. This enables them to chop shorter . . . deliver 45% more cutting action. Auger-blower model (shown) recuts crop at 4-knife blower. Direct-throw model has wide, cupped knives that throw forage into wagon. Stalk chopper model shreds stalks or light brush . . . clips pastures.

with the lowest

New McCormick No. 61 Power Forage Feeder, which unloads from side or rear, takes the muscle-work out of filling silo or feeding green-chop forage. Box holds six tons. It can be mounted on any 6-ton running gear or truck chassis. Teamed with the big-capacity McCormick No. 40 blower (above), this heavy-duty forage box unloads automatically in only eight minutes! Front-mounted, side unloading conveyor is ideal for filling feed bunks.



New 9-knife cutter head for shorter, more uniform chopping in light or heavy corn and hay is now available. Spinning at 1,000 rpm, this new cutter head gives you 50% more chopping power. . . . lets you drive faster in light crops. Heat-induction hardened, alloy-steel knives, keep their razor edge longer. Their throwing action carries cut crop out the delivery spout into the wagon.

INTERNATIONAL HARVESTER

Outdoor milk vending machines . . . show promise of lowering cost of milk distribution. But sales volume per machine must be high to make venture pay off.

by John W. Carncross

THE outdoor milk vending machine shows promise of lowering costs of milk distribution and increasing milk sales in some urban areas. This conclusion is based on a personal interview with 59 outdoor milk vending machine owners operating 782 machines in New Jersey.

The number of machines in operation has been increasing rapidly during the last three to five years. The largest number of machines were found in the densely populated northern New Jersey metropolitan area.

Some operators were optimistic about outdoor milk vending machines as a newer method of milk distribution. Some operators, on the other hand, were pessimistic. This is easy to understand when we look at the variation, between operators, in cost of selling a quart of milk through the machines. Operators with low costs were the optimists, and, in general, the pessimists were high-cost operators.

Average number of quarts dispensed per machine per day was the most important single factor affecting costs. One group of 111 vending machines, with an average daily sales of 51 quarts per machine, had a selling expense of 5.6 cents per quart.

Another group of 208 machines with an average yearly daily sales of 25 quarts had a selling expense of 10.2 cents per quart. (See table on opposite page.)

This comparison clearly shows the importance of high volume of sales per day.

One machine, dispensing an average of 100 quarts per day for the year, had a per-quart cost of 4.2 cents. Another individual machine with high volume sales, dispensing 65 quarts per day, had a cost of 4.3 cents per quart.

You may ask: Why is a high volume of sales important in order to obtain low selling costs per quart? This is largely due to the relatively high fixed costs per machine. It costs an average of $971 to operate a machine for the year. Approximately one-half of this total was fixed costs, including depreciation and interest on the machine, $170; housing, $41; and rental space, $269. The original average cost of a machine was $1,007. Since these fixed costs are constant, the larger the number of quarts dispensed, the lower the cost per quart.

Cost of operating . . .

(Year ending April 30, 1958)

Item	Average cost per machine
Depreciation of machine	$145
Interest on machine	25
Depreciation on housing	35
Interest on housing	6
Rental of space*	269
Total fixed cost	$480
Servicing cost	229
Truck cost	81
Administration	50
Loss from spoilage	20
Labor, repairs and parts	78
License and tax	14
Total operating cost	$472
Interest on costs	19
Total all costs	$971

Total selling expense per quart	$ .087
Quarts sold per day	31
Quarts sold per year	11,211
Total number of machines	782
Total number of operators	59

*Includes electricity.

Average volume of sales per day for the 782 machines was 31 quarts, or a yearly total of 11,211. Total average selling expense was 8.7 cents per quart. It was the opinion of some of the larger operators that a sales volume as high as this average of 31 quarts per day, or higher is necessary for the successful operation of the machines. With the larger volume of sales, vending machines are competitive with supermarkets, and particularly competitive with home delivery.

The key to successful operation of the machines is a location which will assure a high volume of sales. When choosing a location, many operators look for an area which houses medium-to low-income groups. Many consumers are interested in the savings which can be made and are willing to carry the milk home from a vending machine.

Operators also take into consid-

The author is an agricultural economist at Rutgers University, New Brunswick, New Jersey.

This Tag Means Your Dairy Spray Has Repellent Protection

*This tag identifies sprays containing one of the Cow-Tent Repellents . . . MGK Repellent 11, or MGK Repellent 326

Look for the COW-TENT* that makes Contented Cows (and bigger milk checks!)

Nothing will throw a cow into a slump faster than a swarm of biting, buzzing, blood-sucking flies or mosquitoes. That's why you should look for a dairy spray displaying the Cow-Tent tag shown above.

Cow-Tent is the trademark used to identify dairy sprays that give your cows *double-barreled* protection.

First, Cow-Tent sprays have *repellency*. They contain either MGK Repellent 11 or MGK Repellent 326. These are the remarkable new chemicals that drive flies away from your cows. They give your herd an *extra* measure of protection never available in older type sprays.

Second, Cow-Tent sprays contain *Pyrethrin*. This is the potent insecticide that knocks down flies . . . kills them quickly.

How Cow-Tent Works

When a swarm of flies attacks a cow protected by Cow-Tent, many of the flies are repelled by its action and don't light. Then, most of the flies that do light get a "hot foot" and leave immediately. Finally, those flies that aren't stopped by the repellent action are killed quickly by the Pyrethrin.

The result is that cows protected by Cow-Tent sprays have fewer flies . . . and get bitten far less often.

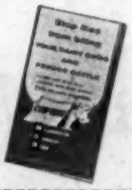
Sprays containing Cow-Tent are effective against stable flies, house flies, horse flies, deer flies, horn flies, mosquitoes, and gnats. They give field as well as barn protection. *And they are fully registered with the USDA for dairy spray use.*

So this year, keep your cows happy . . . and watch your milk check go up . . . by using dairy sprays that contain Cow-Tent.

(Not all sprays contain Cow-Tent. That's why you should always look for the big Cow-Tent tag or the Cow-Tent symbol on the label . . . your assurance of effective repellency.)

FREE FLY CONTROL PAMPHLET

Sprays with Cow-Tent give you the best protection you can buy. Send for this free pamphlet which shows what you should do to set up an effective fly control program on your farm that complies with all milk sanitation requirements.

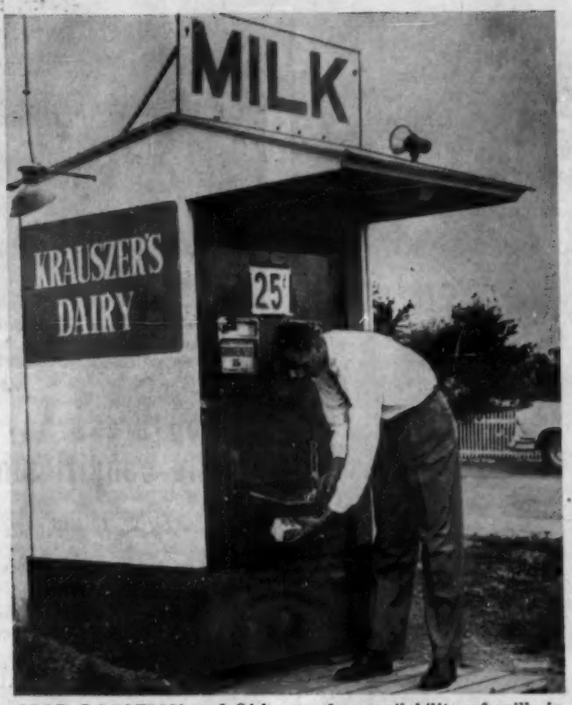


Now . . . Protection Against Face-Flies

Dairymen whose herds were hit by face-flies last year know what a menace this new fly presents. Face-flies cluster on a cow's head, getting in her eyes and nostrils. The severe discomfort causes heavy milk production drop. If face-flies hit your herd, ask your dealer for the new, effective face-fly preparation containing Cow-Tent. Write MGK for the names of the dealers in your area who handle face-fly repellents containing Cow-Tent.

MGK McLAUGHLIN GORMLEY KING Company

1715 S. E. Fifth Street / Minneapolis, Minnesota



GOOD LOCATION and 24-hour-a-day availability of milk in outdoor vending machines are important in increasing sales. New Jersey sales were highest in August, lowest in February.

eration available parking space, changemaking facilities, and nearby supervision to prevent vandalism. For these reasons, a location adjacent to a gas station is frequently chosen. Space is usually rented. Rental fee usually includes cost of electricity for refrigeration and operation of the machine.

There was some seasonal variation in milk sales as reported by the machine operators. For instance, there were 21 operators with annual sales of over 10,000 quarts per machine. Highest average daily sales in this group were 52 quarts per machine per day in August, and lowest in February with 29 quarts per machine per day.

Practically all milk sold through the vending machine in this study was homogenized and sold in single-quart paper containers. Owners reported the most serious problem was trouble in operating the coin mechanism. Frequently, failure of the public to follow directions closely in the use of coins results in jamming the machine. This difficulty may be partly overcome as the public gains experience in proper operation of the machines.

It is interesting to note 33 owners, or 56 per cent of the total, operated fewer than 5 machines. Twenty owners operated between 5 and 35 machines. Six owners operated more than 35 machines each, with a total of 438, or 56 per cent of the total machines covered in the study. These three groups differed very little in their selling costs per quart.

Of the machine owners interviewed, 80 per cent were of the opinion lower price, convenience, and 24-hour-a-day availability tended to increase total consumption of fluid milk.

How volume of milk sales affected selling expense . . .

Quarts sold per year		Quarts sold per day	Selling expense per qt. cents	Number of operators	Number of machines
Range	Average				
Under 8,000	5,759	16	16.2	15	90
8,000 - 9,999	9,198	25	10.2	13	208
10,000 - 14,999	12,192	33	8.0	19	373
15,000 and over	18,654	51	5.6	12	111

75 years ago...

Two-thirds of the amount of a generous ration for a cow goes to keep the cow alive and in health and vigor. All the money there is, or can be made, by feeding her is made out of the other third. To put it in another form, the first two-thirds is lost, the last third is sold for three prices to the cow.

This everlasting truth ought to be painted plain on every dairyman's big barn doors where he can read it every time he goes to the barn to feed his stock. But the mass steal money from their own pockets and throw it away by raising the skeptical query: Will it pay? and withhold the food.

A man might as well ask if it will pay to feed oats to the horse that is doing the plowing.

W. B. Hand

1 MILKING WILL PROVE ONLY Maes MASTITIS-CONTROL INFLATIONS

CAN MILK YOUR COWS SO WELL!

The Amazing MAES NARROW-BORE INFLATIONS FOR YOUR SURGE SHELLS...

Narrow-Bore Inflations are not new to MAES, *we pioneered them* and thousands of De Laval users, from coast to coast, have profited from MAES Narrow-Bores the last 23 years.. no mastitis,—better and faster milking,—extreme simplicity,—and the most sanitary inflation of them all.

In conjunction with the College mastitis research conducted at Davis, Calif., MAES takes pleasure in introducing its newly designed Narrow-Bore inflation for Surge—with 23 years of "Narrow-Bore" know-how behind it. Nothing like it—no rings, no gaskets, no windows, no gadgets, no assembling tools, never needs adjusting, taken apart and reassembled in a jiffy. Simple and sanitary beyond comparison. *No new shells needed*, so cost is a mere fraction of anything competitive. Price per inflation only 85¢ and we pay the postage.

NOW IN 3 SIZES—Large, medium and new narrow-bore. Your choice of natural brown gum rubber or super-soft, black synthetic.

MONEY-BACK GUARANTEE: Try MAES Mastitis-Control Inflations on your own cows in your own barn. One milking will prove MAES outperform any inflations on the market. Order now. If inflations don't satisfy—return them undamaged within 30 days for prompt money refund!

Order on Coupon!

A FEW MORE MAES DEALERS WANTED • WRITE TODAY!

MAES MILKERS, INC.
DEPT. G-60, MARSHALL, MICHIGAN

I enclose $_____ for the following inflations for my Surge Shells @ 85¢ each (on order of less than $6, add 35¢ for postage):

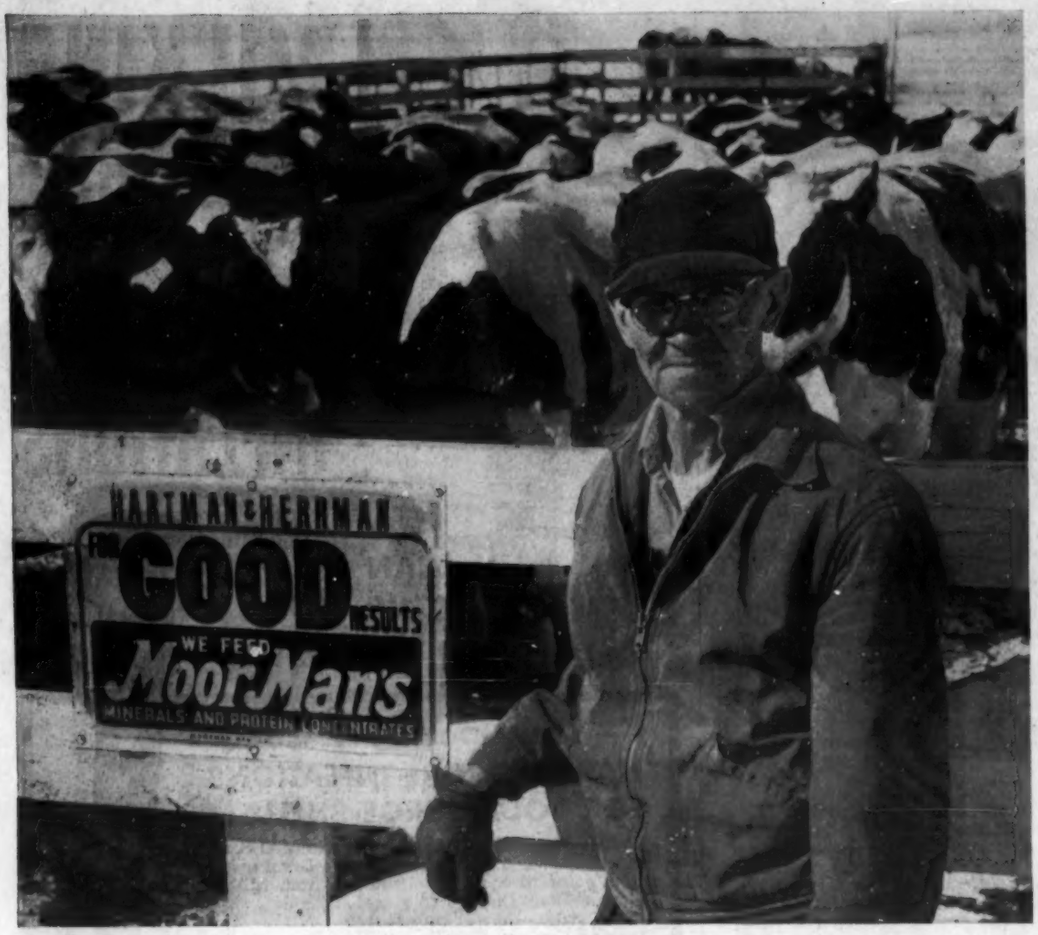
Brown { Narrow-Bore ___ / Medium . . ___ / Large . . . ___ }
Black { Narrow-Bore ___ / Medium . . ___ / Large . . . ___ }

Name _____
Street (R.R.) _____
City _____ State _____

IMPORTANT! Fill out information below:

No. Cows _____
Breed of Cows _____
No. Surge Units _____

Switch today, mail this coupon and see for yourself



Return over feed cost— $301.00 per cow

"We've been feeding MoorMan's Mintrates* to our dairy herd for 5 years," says George Herrman, Jr., tenant, and Arthur Hartman, owner of a 240-acre farm in DeKalb County, Illinois. "Besides increasing production and profits, we find that MoorMan's keeps our

cows in better condition and that we have practically eliminated breeding problems."

Hartman and Herrman DHIA records for testing year ending November, 1959 show: Total feed cost to produce 100 lbs. milk was $1.38 . . . total feed cost per cow was $173.00 . . . return over feed cost per cow was $301.00. Hartman and Herrman's 51.1 cows averaged 12,610 pounds of milk and 474 pounds butterfat. This is 2,032 pounds of milk and 76 pounds of fat above the DeKalb County DHIA average.

Here's why you, too, can get such "Good Results" with MoorMan's. Dairy Cow Mintrate is a super-concentration of seven proteins, urea, fifteen minerals, plus Vitamins A and D. This combination increases microorganism activity in the rumen, helps cows get more of the milk-producing energy out of your home-grown grain and forage. Only a pound of Mintrate fed daily will make your cows thrifty producers . . . give you extra profits on your milk checks.

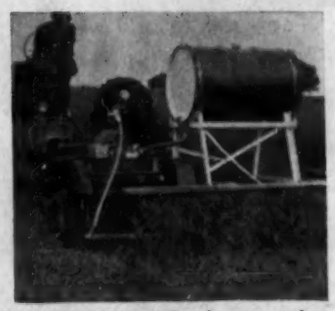
Ask your MoorMan Man about Dairy Cow Mintrate and your own Personalized Dairy Feeding & Management Program. If he doesn't call soon, please write: Moorman Manufacturing Company, Dept. P06, Quincy, Illinois.

MoorMan's*

75th year

Good Results Through Research and Service

*Trademark Reg. U.S. Pat. Off.



BOOM with nozzles is mounted a few inches off the ground, behind the rollers of the hay conditioner.

Top-dress hay while conditioning

by C. L. Hill

FOR several years we have been demonstrating the practice of top-dressing alfalfa while conditioning. The procedure is to mow hay from a small plot, remove hay by hand, apply fertilizer, then replace hay by hand.

The farmer on whose field this was done could observe:

1. Quick regrowth of alfalfa.
2. The additional tonnage of hay from the second cutting.
3. The additional years that the stand of alfalfa can be maintained.

We enlisted the aid of several people and companies to investigate whether it would be possible to follow this practice on a farm scale by using existing machines.

The hay conditioner appeared to have the best features for the fertilizer applicator. Not only would it help cure the hay but its general construction is quite similar to a fertilizer spreader. Also, by applying the fertilizer with a hay conditioner, the plant food is on the stubble almost before it has come to rest after the mower cuts it.

This is a more desirable practice than application after the bales are removed because:

1. Sudden showers would wash the fertilizer into the soil.
2. Haying, cultivating, or rain would not keep the farm owner from applying the top-dressing.
3. Trips over the field with machines would be reduced.

For the first trial, father and son dairymen Claude and Dan Wright, of Delaware County, Indiana, agreed to cooperate on a 20-acre field of second year alfalfa, clover, timothy.

A semi-mounted mower and conditioner drive were added to a model hay conditioner. A pump with varying degrees of pressure (3 to 30 psi) was added that would apply liquid fertilizer at the rate of 200 to 800 pounds per acre. A few simple adjustments of the height of the boom and the angle of nozzles and the job was done.

The conditioner picked up the mown swath and, while the hay was in the air, the fertilizer spray hit the stubble. The conditioned hay then fell to the stubble.

Checks of the unconditioned hay, conditioned hay, and conditioner top-dressed hay indicated that the solution of fertilizer did not adversely affect the drying rate.

The Wrights made over 80 acres (60 acres in addition to the 20 trial acres used) of heavy first-cut hay using this trial mower-conditioner-top-dressing machine hookup.

The author is an instructor in agricultural engineering, Purdue University.

Foot-and-mouth virus tougher than thought

Foot-and-mouth disease may be more dangerous than was previously believed, according to agricultural research service scientists at the Plum Island animal disease laboratory. Recent tests showed the part of the virus which produces disease is particularly resistant to destruction by heat.

Experiments revealed that heating the virus to 140 degrees F. does not destroy the infectious core of disease-producing riboneucleic acid. It only seals the infectious core within the protein covering of the virus, blocking its ability to act on susceptible animal cells. But once the protein covering is chemically removed, the sealed-in cores retain their infectiousness, even in tests where the virus had been boiled as long as five minutes.

Nature, it was pointed out, may have similar ways of chemically unlocking the infectious core of the heat-treated virus. If this is true, the perils of the disease may be greater than heretofore supposed.

"Delight" scores again

Minnow Creek Eden Delight, now owned by J. E. Taylor, Orange, Va., recently completed a 365-day lactation of 22,269 pounds of milk, 890 pounds butterfat. Nationally, this sets new all-time highs in both categories for 16-year-old Holstein cows milked twice daily in the Advanced Registry testing program.

The new record brings Delight's official lifetime totals to 254,111 pounds milk, 10,977 pounds butterfat. It merely consolidates her position, first gained last December (January 25 issue) as the top lifetime butterfat producer of the Holstein breed.

The previous national record for 16-year-olds has been on the books since 1951. It was established by Tyler Farms Posch Carrie, owned by John Holser, Troy, N. Y., that produced 17,310 pounds of milk, 711 pounds of butterfat.

Minnesota men retire

Two long-time extension dairymen retire from the University of Minnesota in June. They are Harold R. Searles, a staff member for 40 years, and Ramer Leighton, with 35 years of service.

Searles has been active in promoting organizations of dairy plants, better dairy feeding, and general herd management, as well as 4-H dairy projects.

Leighton has been closely associated with the Minnesota Dairy Herd Improvement Association program and has been instrumental in promoting testing among state farmers. Both men are graduates of the University of Minnesota.

W. E. Petersen, internationally-known professor of dairy husbandry retires in June. In his 39 years at the university, Petersen advanced numerous principles involving dairy physiology, particularly in milk secretion.

In 1929, he produced the first experimental evidence that a calcium deficiency is involved in milk fever, a finding which led to development of effective treatments. Research credited to him includes:

1. The fact that hormone oxytocin causes cows to let down milk.
2. A rapid milking procedure widely used.
3. How milk is made, through developing a "mechanical cow."
4. The principle that the udder will produce disease antibodies in milk after being injected with disease-producing organisms.
5. Being one of the first to experiment with ova transplanting.

In 1952 he was made a knight by the King of Denmark in recognition of his research. He is also a 1942 recipient of the Borden Award in dairy science and in 1956 won both the Milk Industry Foundation Teaching Award and the F. B. Morrison Award.

Peterson is author or co-author of seven college textbooks in dairy husbandry.

New Holstein champion

A registered Holstein cow owned by the S. M. Austin Estate, Columbus, Wis., has completed a lactation which makes her the national champion junior 3-year-old milked twice daily in HIR.

Sammay Remer Oliver produced 23,847 pounds milk, 1,142 pounds butterfat. A daughter of Pabst Sir Comet Oliver, owned by the East Central Breeders' Association, Waupun, Wis., Sammay's only previous record was 21,042 pounds milk, 953 pounds butterfat, which is second nationally and the all-time Wisconsin record for junior 2-year-olds milked twice daily.

The previous junior 3-year-old national champion was Lindsay Acres Rag Apple Ellen, bred and owned by A. H. Lindsay and Sons, Carroll, Maine, that produced 22,148 pounds milk, 1,032 butterfat.

The new champion's diet was made up almost entirely of feed raised on the Austin farm. She ate about 40 pounds of corn silage daily, along with 25 to 30 pounds of alfalfa-brome mixed hay. Her maximum grain intake was 24 pounds per day, fed in three feedings. William Schultz, the farm operator, is her owner.

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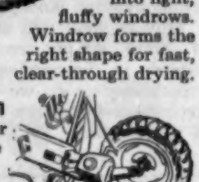

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EDITORIAL COMMENT

DAIRY MONTH FRIENDS

ONCE again, for the 24th consecutive year, June is set aside as Dairy Month. During its 30 days we will see and hear the goodness of dairy foods extolled. In newspapers and magazines, from the speaker's rostrum, on radio and television, on retail milk trucks, in corner groceries, and in huge supermarkets, consumers will be told the virtues of milk, butter, cheese, and all of the other products made from milk produced on a million dairy farms throughout the land.

Of course, we in the dairy industry consider every month Dairy Month but to our customers special emphasis is needed in a major selling effort. This is being done with dairy farmer funds through the American Dairy Association. It, with 12 other national dairy organizations, spearheads the campaign.

Much will be said and written about the dairy industry and June Dairy Month in the next four weeks. We have but one simple suggestion to add. This selling effort requires a great deal of cooperation on the part of all concerned, particularly food stores. As dairy families shop for their personal food supply, they should take time to compliment the store manager or store owner for his cooperation in behalf of all of us in the dairy industry. A word of appreciation now will mean greater cooperation and participation next year.

And, after all, that word of acknowledgment and thanks is justly deserved.

ADVICE OFTEN RECEIVED

ALMOST daily we hear or read of someone advising farmers to follow the example of American business in solving today's economic problems. Terms such as "free market," "free enterprise," and "supply and demand" are loosely used, implying, of course, that agriculture does not operate in the traditional concept of American business.

We have no doubt that our advisors are sincere and well-meaning. But there are some widely-held misconceptions within and without agriculture and they should be corrected.

Actually, the law of supply and demand applies to us all, but business and industry use its economic power, work within its framework to gain a return for management skill and invested capital.

Business or industry create a product or a service, determine its cost, and then market it with all of the promotion and selling resources available. But good business sense dictates that no more products be produced than can be sold at a reasonable profit. Production is geared to sales and a terrific effort is made to sell the greatest possible volume of the product.

Certainly no one would deny that this is all within the free market concept that we commonly understand. It is the capitalistic system. The law of supply and demand is at work. This is free enterprise.

But agriculture does not follow this traditional business pattern. It produces to full capacity and hopes there will be a market for its products. Sporadic efforts to boost sales are attempted. In the case of the dairy industry, a continuing program of sales expansion is carried on through the American Dairy Association and the National Dairy Council as well as through the processing branch of the industry.

But farmers flood their market in a manner which no intelligent business would condone. We don't produce for a market, as does business. We produce without regard to market demand, without regard for our ability to sell at a profitable price level. Such a procedure in the business world would be recognized as economic suicide.

The basic problem before us, then, is how to practice good business principles in the marketing of our products. How can we develop the marketing mechanisms so that we, too, can produce for a market?

Actually, contract selling of milk, base plans, and individual handler pools are all directed toward this end. The more effective they are, the more satisfactory the dairy farmer return. This approach to dairy marketing reflects, as does traditional American business, the intelligent use of the law of supply and demand.

Someday all agriculture must awaken to the need to produce for the effective domestic market and then promote and sell its products as does business and industry. Only then will we begin to approach the returns of business and industry on management skill, labor, and invested capital.

COMMENT ON NITRATES

OUR April 25 issue contained an article which obviously has caused deep concern among many dairy farmers. Julian Sund's article on nitrate poisoning reported his observations and findings in a clear and concise manner. The headline and the picture of a dead cow, however, created undue alarm in the minds of readers. Such was not the intent.

Almost all chemicals, even common table salt, are potentially dangerous when used or consumed in improper amounts. There are recorded cases of nitrate poisoning, of course, but, in addition to large quantities of nitrates, conditions, such as drouth, were present.

Certainly we have long recommended the proper use of nitrogen to boost crop yields. The nitrogen may be in the form of manure, green manure, ammonia, or nitrates. And about one-half of all dairy farmers are now top-dressing hay and pasture land with commercial nitrogen. This is good and should be increased. Julian Sund simply emphasized that there are hazards in the careless use of chemicals. He recommends, as we do, the proper use of nitrogenous fertilizers for maximum returns on dairy farms.

75 years ago...

There are such a lot of men who seem to be as afraid of progressive ideas as they would be of smallpox.

There are two kinds of conservatism — that which is born of fear and ignorance and that which is born of knowledge and courage. The first dreads the light, the second asks for more light, better light.

—from an address before the Vermont Dairymen's Assn.

W. A. Hoard

INCOME CHANGE IN 10 YEARS

WHEN the long steel strike was settled last fall, we all heard a great deal about "production per man-hour." The big issue was whether or not the final wage settlement would exceed the gains in productivity of steelworkers. It was generally accepted that the workers would receive wage increases to reflect their increased productivity. Any increase beyond this level was termed inflationary. This was the big issue.

It is interesting to review the gains in production per man-hour on dairy farms. Each year the U.S.D.A. Agricultural Research Service makes a careful analysis of commercial dairy farm records in three dairy regions. They are eastern Wisconsin, western Wisconsin, and the Central Northeast dairy area (which encompasses almost all of New York, Vermont, and northern Pennsylvania).

Here are the comparisons taken from Agriculture Information Bulletin No. 176:

Changes in dairy returns — 10 years . . .
(from 1947-49 average to 1958)

	Eastern Wisconsin	Western Wisconsin	Central Northeast
	%	%	%
Gross farm income	+13	+20	+33
Net farm income	—23	+ 2	+24
Production	+23	+41	+39
Yields per acre	+17	+37	+29
Production per man-hour	+51	+70	+69
Hourly income	—51	— 5	+ 7
Hourly labor return . . .			
Actual 1947-49	$ .73	$ .60	$ .74
1958	.36	.57	.79
To reflect per-hour production	1.10	1.02	1.25
Needed to reflect productivity	+66%	+44%	+37%

Study these figures carefully because they reflect the change in dairy returns better than any data we have reviewed.

Note the paradox in eastern Wisconsin. Production per man-hour went up 51 per cent but hourly income dropped 51 per cent. In western Wisconsin production per man-hour went up 70 per cent and hourly income dropped 5 per cent. In the Central Northeast production per man-hour went up 69 per cent but hourly income went up only 7 per cent.

Particularly significant is the last line in these tables. If our hourly returns were equitable in view of well-accepted practice in labor and industry, they would have to be 66 per cent higher in eastern Wisconsin, 44 per cent higher in western Wisconsin, and 37 per cent higher in the Central-Northeast region.

These figures also account for a variance in dairy farmer attitudes. It is easy to understand why eastern Wisconsin farmers, for example, are more concerned about dairy prices than are dairymen in the Central-Northeast.

The mere existence of these figures is not going to change the future. They do explain an obvious inequity which most dairy farmers feel when they go to buy the products of American labor. They may be useful to dairymen and their organizations in bargaining for better prices on their local markets. At least, they provide effective ammunition for farmers to use in discussing the farm income situation with their city cousins.

Questions from Our Readers

House paint is peeling

The paint on my house is peeling. I just finished painting it and it is blistering in spots. What can I do about it?

Iowa H.J.F.

When the paint on your house peels, there are only two things that you can do about it. Try to find out the reasons why the paint is coming off so that corrective action can be taken. Too much moisture in the wood at the time of painting or moisture coming through the wall during the heating season are the most frequent causes of peeling and blistering of paint on houses.

The use of low-quality paint is sometimes a contributing factor. Some of the paint peeling caused by wintertime moisture does not become evident until summertime. Several months may elapse after the damage is done until the paint actually starts to come off.

In addition to determining cause of the difficulty, the only other thing that can be done is to prepare the surface for repainting. This means removing all paint which shows signs of being loose. Paint the bare spots with a prime coat before repainting the entire surface. Any knots in the wood must be sealed with shellac before applying any paint. The circular-shaped sanding disks work well for removing loose paint and smoothing the edges between bare wood and old paint.

—Fred W. Roth
Iowa State University

Castor bean is poisonous

The castor oil plant, also known as Ricinus, is listed in seed catalogs as being toxic and the seeds poisonous.

Will this plant be poisonous to horses and cattle if they should happen to eat any? Or, is it somewhat like poison ivy? I have seen horses eat it with no ill effects; yet is can be disastrous to human beings.

Pennsylvania S.F.

Castor bean plants are not native to the United States. They are importations into this country, probably from tropical Africa. They are often grown in the warmer temperate areas as an ornamental and in the warmer regions for seed. The plant toxic (ricin) is an irritant and blood poisoner.

All parts of the plant, especially the seeds, are poisonous when eaten by animals. Most poisonous plant books list all animals and man as being susceptible. The animals that are most often listed as being susceptible are cattle, horses, sheep, pigs, and poultry.

You state in your letter that you have seen horses eat it with no ill effects. They might have had full stomachs and ate only a small quantity, which was not fatal. Had they eaten it on an empty stomach or eaten large quantities, the results might have been altogether different. The amount of other feed that the animal has already taken in, the size of the animal, and its state of health, as well as the amount of the poisonous plant eaten have an effect on the final outcome.

While the plant is extensively grown as an ornamental, users should be made aware of the known toxic action of the plant. Children should not be allowed access to the plants, especially the Castor oil beans. We actually had a student in general botany become ill because he nibbled on the seeds. All livestock should be kept away from all plants and seeds. These are by far the safest procedures, considering what we know about the plants.

—E. P. Sylwester
Iowa State University

Motherwort in woodlot

A woodlot, adjacent to our buildings, is full of a weed known as motherwort. The oaks and elms in this area are dying out fast.

I would like to keep the woodlot since it acts as a windbreak for our house and livestock. Can you tell me how to clean it up?

Iowa O.M.

Motherwort is a perennial of the mint family. It likes to grow in rich, cool, moist, shady areas. Frequently, it is found around farm buildings and in groves, orchards, waste areas, and farm woodlots.

To control this pest in a woodlot should present no problem, if you go about it systematically.

In the first place, clean up the woodlot, gather up all major timber and branches and put them into neat piles, raised off the ground to eliminate rat and mice harbors. Anything that is usable for lumber, posts, fuel, and so forth, should be salvaged and the rest left on the ground as organic material.

After cleaning up the area, disc in and around the trees and stumps as thoroughly as possible. Put in a good grass seed mixture, including a liberal amount of orchard grass and brome grass seed, as well as some timothy and bluegrass. Also, seed a small amount of oats as a nurse crop. Lightly harrow all the seed into the ground, using a small tractor and a small harrow to facilitate getting around stumps and trees. A hand seeder could be used.

Pasture the area lightly and judiciously to prevent the nurse crop from becoming too rank and also to prevent annual grassy weeds from becoming too tall or seeding too heavily. Generally, animals will avoid the motherwort plant due to its bitter taste.

When the motherwort plants are about a foot high, spray with 2,4-D, preferably the amine form. Wait until a quiet day, or spray when the wind is away from the garden or farmstead. If a field sprayer is used, use 1 quart of 4 pounds-per-gallon 2,4-D amine concentrate per acre in at least 15 to 20 gallons of water per acre. If you utilize hand spraying, use 1 quart per 25 gallons of water and spray until moist. To each 50 gallons of spray solution, add 1 pint of liquid detergent or wetting agent.

Respray area whenever motherwort plants are 6 to 8 inches high.

—E. P. Sylwester

Plywood ceiling for barn?

I am building a new stanchion-type barn and would like to know what material to use for the ceiling and how to ventilate it. The hay mow is on top of 2-by 12-inch joists and the ceiling will be underneath this. The barn is 36 by 68 feet and I have a 30-inch exhaust fan in the center of the south wall near the ceiling.

How about exterior plywood for the ceiling?

Michigan L.M.

Plywood will make a good ceiling. However, there is no particular need for using an exterior grade. Lumber or various types of hardboard also would be satisfactory.

When putting a ceiling on the underside of the floor joists in a dairy barn, it is extremely important that there be tight headers between the joists at the walls. This is to prevent cold air which might enter at the walls from circulating between the mow floor and the ceiling. If cold air is allowed to enter this space, the insulating effect of the hay in the mow is lost and the ceiling is bound to be wet in cold weather, regardless of the ventilation system.

From a strictly practical standpoint, there is no need of having a ceiling on the underside of the joists. However, this will improve the appearance of the stable and present a smooth surface, easier to clean.

The ventilation system should consist of two parts. A fresh air inlet system and an exhaust system. Both are of equal importance. Fresh air can be admitted most effectively by leaving an opening through the mow floor and ceiling, if used. It should be one inch wide, located where the mow floor joins the walls. This opening should extend the entire length of both walls and preferably across the ends of the stable. Air can enter through it from the mow and blanket the entire wall area. It is this dry, fresh air that picks up the moisture in the stable as it is warmed. The moisture is removed as the air is exhausted.

When the slot inlet is used, air must be continuously exhausted from the stable. The large fan you have cannot operate continuously in cold weather without unduly cooling the stable. A second fan of smaller size is needed to go with it. This fan should have a capacity of about 700 cubic feet of air per minute and be operated continuously. It can be located beside your present fan, which I assume is controlled by a thermostat.

—D. W. Bates
University of Minnesota

Replace water pipes

Our farm water system has been in use about 15 years. Each year there has been a noticeable degree of less water per hour. The well has ample water but the pipes have become corroded, thus allowing less water to pass through. Now and then, large rust particles dislodge.

We would like to know if there is any chemical, product, or procedure we could use to dissolve or dislodge this corrosion.

Michigan A.D.

In most cases the deposited material is quite resistant to ordinary chemicals and it is necessary to use hydrochloric acid, or some other strong acid. Hydrochloric acid, of course, is very corrosive to all metal as well as the deposits. Frequently, its use results in extensive damage to the plumbing system. It is not recommended for use by an individual who does not have the proper flushing equipment.

Occasionally, plumbing contractors do use this material where it is very difficult to change the pipe. But, the best solution for badly-corroded pipes is to remove them.

Since your water apparently carries a large amount of minerals, this material should be removed from the water so that you will not be troubled in the future. In most cases this could be done with a water softener. It might also be possible to install a polyphosphate feeder. This may help prevent additional corrosion.

It is difficult for us to determine which would be the best in your particular case. If you decide that such a device would be desirable, consult with your plumbing contractor or local dealer who handles plumbing and water supplies.

Usually, your local dealer can have water tests run for you, free of charge. Based on these tests, he or his company can determine the type of water treatment necessary to prevent the deposit of minerals in the pipes.

I would suggest that if your pipes are no longer usable, it would be best to replace them and then treat the water to avoid a recurrence of your present problem.

—G. P. Barrington
University of Wisconsin

ED . . . and EMMA

"Dunno . . . kinda uneven over her topline, not much spring of fore and rear rib, a little patchy around her pin bones . . ."

"Sounds like Ed wants to bid on that one awful bad!"

Better public relations needed now!

By 1975 farm people will make up about 5 per cent of our population. So it's important that non-farm people be informed on farm policy. Speak up, dairymen!

by Melvin Scholl

WE HAVE made giant strides in the past two decades in technological fields but we have progressed very little in dealing with other people. In other words, our public relations has been faulty.

Not only is our voice distorted, but it is getting weaker numerically. The estimated farm population in April 1957, was 20,396,000, a drop of more than 1 million in a year and a decrease of 4,662,000 since 1950. The total United States population has increased meantime by 20 million from 1950 to over 170 million today, or about 1.8 per cent a year.

The number of Americans employed in agriculture has decreased steadily, especially since 1940. We are just as dependent on the land for food and clothing as when we shot the buffalo and deer. In 1820, one man could provide food for himself and three other people. Today, one farmer feeds himself and 23 others. Consequently, many urban people tend to underestimate the significance of agriculture in the history of our nation and lives of all the people today.

Dairy farms decreasing . . .

The same trend witnessed in agriculture in general can be seen also in dairying, in that fewer dairy farms are supplying America's milk each year. In fact, between 1950 and 1954 alone, the number of farms selling milk and cream fell from 2,006,831 to 1,474,699, about 25 per cent. And it's not unreasonable to predict that in another generation fewer than 500,000 dairy farms will fill all of our milk needs.

Note this: 325,000 forty-cow herds averaging 10,000 pounds of milk per cow would supply more milk than consumers buy today.

Thus, it can be seen that farmers are a dwindling minority in a growing America. Their future prosperity rests most certainly on an understanding and informed citizenry. The time is opportune, then, that all of us worked a little harder to tell the people how vital agriculture, and dairying in particular, is to their national security and their economic well-being.

Consumers' interests need to be explained to farmers and the farmers' interests need to be explained to consumers since they have a mutual concern. In press, radio, and television there is a movement to control men's minds. These groups strive to promote ideas, products, causes, sales, institutions, organizations, security, and safety.

These facts are important . . .

Dairying is the greatest single source of farm income in the nation, in fact, one-fifth of it. In 1956, the farm income from dairy products and dairy cattle sold for meat purposes was $6 billion. The dairy industry is the greatest customer for America's truck manufacturers.

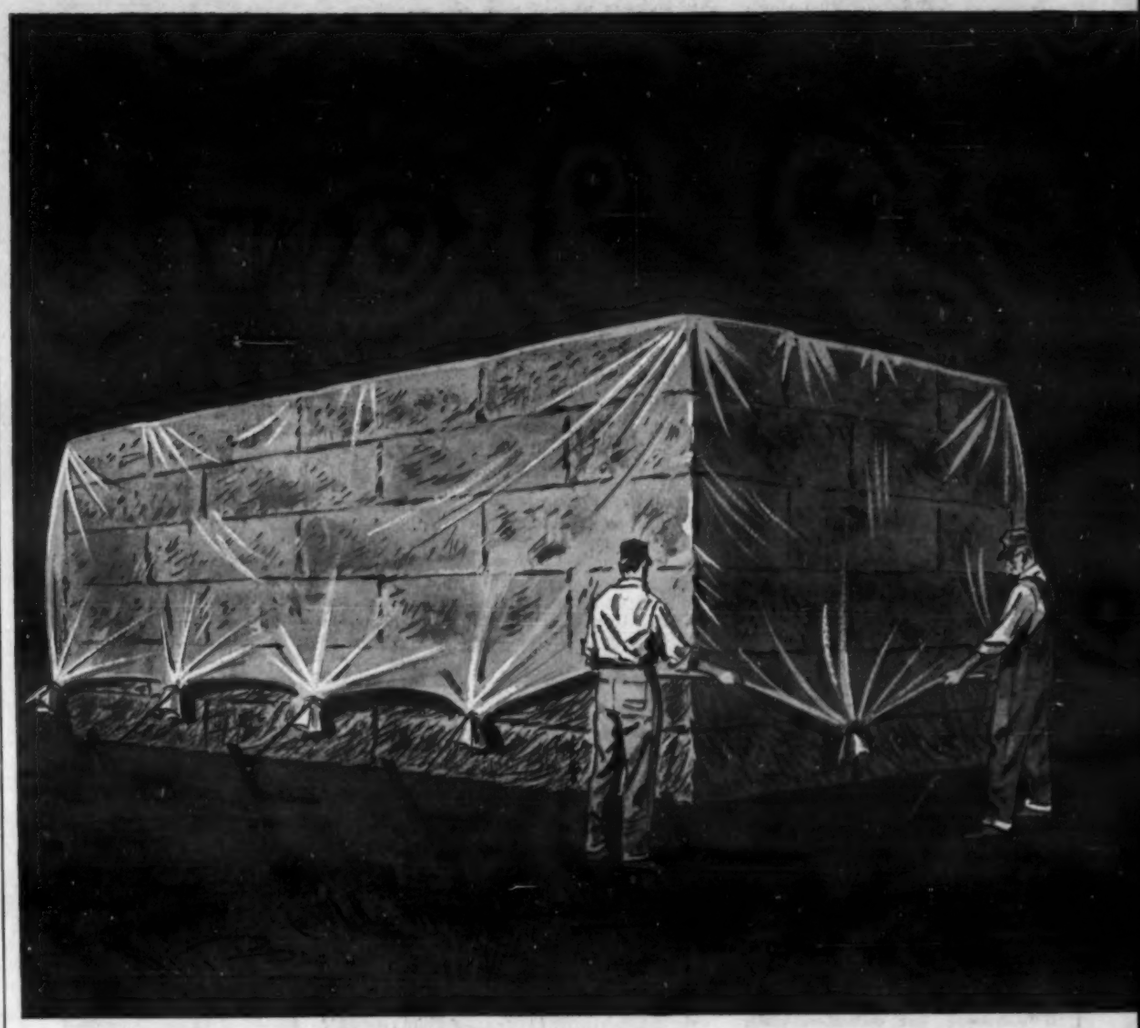
In 1958, there were 22,357,000 dairy cows on America's 1½ million dairy farms. Estimated production was at the high level of 126.1 billion pounds. Square milk bottles (8 inches high) filled with this amount of milk and stacked one on top of the other would reach to the moon 30 times.

The dairy cow is a marvelous food factory. No other beast or bird, no other man-operated manufacturing machine or plant is more efficient in the production of food for man. She is the number one soil conservationist. Prosperity follows wherever she goes.

Historically, she has been inseparable from human progress. Man has migrated more often in search of green pastures for his cows than for any other cause.

In view of the importance of dairying and the intrinsic worth and nobility of the cow, and the unfair price the farmer is getting in the nation's economy, it is disheartening to note what a brutal, concentrated attack farmers are getting now in the public press.

Scarcely an issue of any business or consumer publication comes out that does not have some base reference to the "scandalous" farm subsidies, the "profiteering" of farmers, and the financial ruin they are bringing to America. Ap-



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parently these editors have come to feel that the farm program is the root cause of all the financial ills of our government and the basis of robbery of the consuming public through high food prices, and against which a consumers' revolt is brewing.

The furor has become so intense, so biased, and so unreasoning as to cast confusion and suspicion into the public mind. It has caused farm problem legislation to become hopelessly deadlocked.

It is tragic enough when the dairy cow has to subsist on a subsidy, not on sales of her products, without the press making such false allegations against her.

The truth behind the farm program has never been better described than in an article in Capper's Farmer (December 1958), "What city people should know about farmers."

These salient facts are noted, by permission of the publishers. In the past 18 years farmers have boosted their efficiency as much as in the preceding 120 years. Farmers have much more help from city workers than they did 100 years ago. They are, therefore, free to specialize in producing food. And, since the early 1940's, the combined per-acre yield of 18 leading field crops has increased dramatically—40 per cent.

Last year, some 60 cents out of every dollar we Americans spent for food went to the people who bought, handled, sold, processed transported, and packaged farm products. A little less than 40 cents went to farmers. Consumers have been mainly responsible for this disparity by demanding more all the time in the way of services, "convenience foods," and so forth, and they aren't free.

Furthermore, from 1952 through 1957, with ever-increasing inflation, farm prices actually decreased 20 per cent (from $15.1 billion total farm income in 1952 to a low of $10.8 billion in 1957). This is the reason why food prices remained fairly stable in this 1952-57 period. Had farm prices gone up at the same rate as other cost-of-living items, we would have paid some 25 per cent more for food and clothing. U.S. Department of Agriculture estimates that since the Korean War consumers have been saved $70 billion.

So it's only fair to point out that in the 1952-57 period farmers actually subsidized consumers. Although they make up 12 per cent of the population and produce 65 per cent of the raw materials for industry, farmers in 1957 got only 4 per cent of the national income. And during this time, the cost of practically all the farmer's tools of production has increased (up some $3.7 billion from 1952). This is what farmers are talking about when they mention "cost-price squeeze."

The "man-in-the-street" erroneously assumes that farmers are the chief recipients of subsidies. The amount of farm subsidies has been greatly exaggerated in the minds of many. In the past 50 years, for every $1,000 this country has spent for subsidies, the farmer has received only $5.

Subsidies several times greater than farm subsidies are given non-agricultural industries through tariffs, tax exemptions, rapid tax amortization certificates, advantageous postal rates, subsidies to airlines, railroads, American shipping lines, schools, the petroleum industry, housing, and so forth. We don't hear much about these subsidies in industry. Only farm subsidies make headlines.

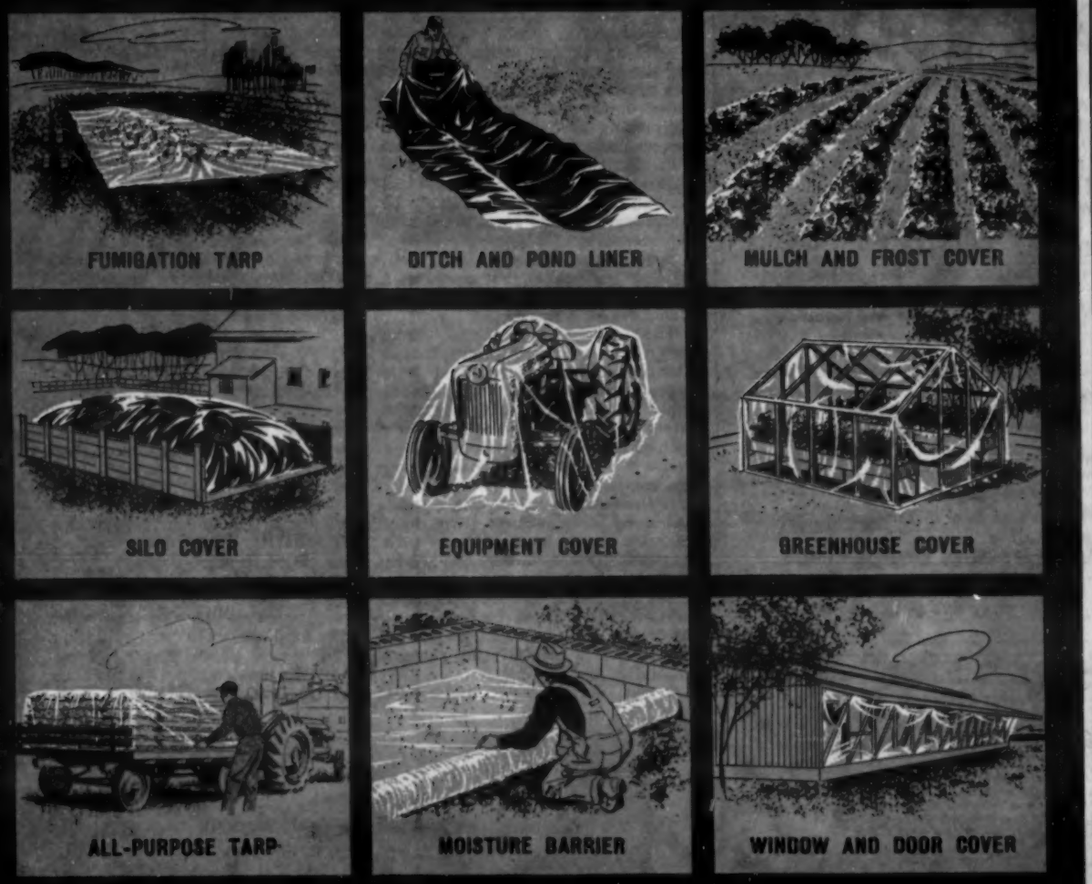
The 1960 U.S. Department of Agriculture budget ($5.4 billion) is something of a catchall. Many of the items have nothing to do with supporting farm prices, but are primarily a public service. A very large proportion of the sums that have been paid farmers under this program have been pumped almost directly into the economy —affecting, as these expenditures fan out, industrial production, city employment, and consumer income. It has been well said that given money a farmer will spend it.

Part of the agricultural budget, of course, is in the form of loans —all paid back with interest. Take the $650 million items for loans through REA and FHA — loans that are a booster for all business and industry. REA, for example, has made the farmer a big user of electricity. Today he is a top market for all kinds of electrical equipment and home appliances.

Money that the government allocates to the Commodity Credit Corporation (CCC) for support loans does not disappear into thin air. CCC through its disposal operations is recovering some 70 cents on the dollar, according to actual figures in the U.S. Department of Agriculture budget office.

The public needs to be reminded that food surpluses are always a blessing, not a curse. They insure abundance and reasonable prices. The time may come — indeed it may not be too far distant — when we will become a "have-not" nation in a land capable of producing food. The historic truth is that the critical factor in all decay of empires has been the shrinking of fertile land coupled with increasing population.

Ultimately, the one great hope of the dairy industry lies in the yet unexplored and fertile field of public relations. Now is the time to sow the seeds of communication if we may expect the harvest of good markets and prices for our products. Successful operation of a dairy farm from an economic point of view is a necessary objective but it is not the major objective in life. Improvement of the community and the nation in which the farm family lives is an essential part of their objective. Broad public contacts and observations make more useful and happy citizens.



thing since baling wire

ings, pond liners—even for home-made swimming pools and ice skating rinks. The low cost of POLYFILM makes it a practical all-purpose farming "tool".

POLYFILM is water resistant—makes an ideal ditch and pond liner, foundation wall sealer; it even floats and will reduce evaporation from tanks and ponds. Silage can be protected from spoilage longer by keeping a high percentage of air from entering the silo.

Wind and rain resistant, POLYFILM makes an effective cover for fertilizer, building materials or equipment. Where prolonged exposure to sunlight is expected, black POLYFILM is recommended. POLYFILM is heat and cold proof—remains flexible to —60°F. Tough and lightweight, a 20-lb. roll of 4 mil POLYFILM will cover 1,000 square feet. Its durability usually permits re-use, reducing your cost-per-job.

Put POLYFILM to work on your farm or ranch today . . . discover the savings possible with this handy farming "tool". Ask your nearby Dow dealer for POLYFILM in the colorful carton which doubles as an easy-to-use dispenser . . , there's a size, color and thickness to match your farming needs.

POLYFILM in the handy take-out dispenser box is available in clear and black; 1- to 32-foot widths; 1½ to 8 mil thickness, and up to 1,000-foot lengths.

THE DOW CHEMICAL COMPANY · MIDLAND, MICHIGAN

MEYER Saves the Leaves

MEYER Hay Conditioner Model No. 675

Leaves Stay on Stems when SLOW ROLLED

MEYER Conditioning Rolls revolve slower . . . because they are fed by an exclusive, separate pick-up – and do NOT rely on high speed in order to pick up the hay. When high speed rolls are used, hay is grabbed up and forced through . . . leaves are lost. With the MEYER, the hay is lifted and fed through the slower-moving rolls which thoroughly but gently crack the entire stems without crimping and gently press the leaves. The leaves a MEYER saves put more dollars into your pocket, yet MEYER is priced lower.

Exclusive large-diameter rotary pick-up floats freely over rocks and terraces . . . lifts and feeds heavy or thin hay . . . on smooth or uneven, rocky ground. Exclusive non-clogging steel rolls crack entire stems uniformly . . . revolve slowly enough to keep leaves on stems. Both conditioning rolls are roller-chain driven.

Condition while you cut. Use your own mower with Model 675, or get Model 680 with built-in-mower, a MEYER patented feature. Model 205, without separate pick-up, is for use on smooth, rock-and-terrace-free fields. Does superior job to crimper-type machine.

Write For New Literature, Prices, and Name of MEYER Dealer

MEYER MFG. CO. BOX 7763, MORTON, ILLINOIS

MEYER — maker of famous MEYER elevators — is the original and oldest manufacturer of hay conditioners — with over five years more experience than all other makes.

It's a TITAN

MILK TANK BRUSH

Job Tested

Unquestionably the world's finest line of dairy brushes. Ask your dealer

FLOUR CITY BRUSH CO. 1501 4th Ave. So. Minneapolis, Minn.

PACIFIC COAST BRUSH CO. 2030 East 7th St. Los Angeles, Calif.

FLO-PAC BRUSHES

DAISY Cattle Markers

Solid brass tags and brass-plated chain

No. 21—FOR NECK Case-hardened chain. Tag numbered both sides. $18.25 per dozen delivered.

No. 17—FOR HORNS. Case-hardened chain. Tag numbered both sides. $9.20 per dozen delivered.

No. 88—DOUBLE PLATE NECK MARKER. Combination strap webbing and heavy chain, two marker plates. $14.50 per dozen delivered.

Write for catalog. Sample mailed for $1.00.

GOLDEN ARROW FARMS

Dept. C, P.O. Box 7 Huntington, Indiana

FARNAM DIE-FLY "3-WAY" Sugar-Base FLY KILLER

DEADLIEST Fly Killer Yet Discovered!

Pure cane sugar impregnated with powerful new chemical! Stops flies dead in their tracks! Flys are *attracted* to it, *feast* on it, *die within seconds*. Kills flies by the millions. Keeps on killing them for weeks after application.

EASY TO APPLY! . . . Just scatter Die-Fly wherever flies are a problem, or dissolve Die-Fly in water and paint or spray on surfaces where flies gather Economical! A single pound treats 4000 sq. ft.

If Your Dealer Can't Supply You SEND $3.98 FOR 5 LBS. Postpaid

KILLS FLIES By the Millions

1-LB. SIZE Only $1.19 At Your Dealer!

FARNAM Companies

Dept. DF-41 8701 No. 29th St. — Omaha, Nebraska

Enclosed find $.....for which please send .....5-LB. "Shaker-Spout" Cans of Die-Fly postpaid: (Number)

Name.....

Address.....

City.....State.....

Before buying a used baler . . .

. . . check for parts that will have to be replaced and add this extra cost to purchase price. Then compare the total price to that of a new baler.

by Melvin E. Long

THE purchase of used, rather than new machinery, is one method of reducing the total capital investment required on your farm. However, if you are to make a good investment, rather than buying the former owner's "headaches," you must observe carefully the condition of the machine considered.

By using the following check list, you can consider each item in detail. Remember, most used machines are not "good as new" in all respects. It will very likely be necessary to make some repairs or replacements.

Some repairs may be so expensive as to make the machine a poor buy, while others may be only minor repair items.

The probable repair cost varies so greatly among different makes and conditions of balers, that it is impossible to list prices that would apply in each individual case. The safest procedure here is to check with the local dealer handling the particular make of baler that you are considering.

1. General condition. Check paint and sheet metal. These items may give you a clue to the type of care that the former owner has given the baler. While these items themselves may not affect the operation, a baler that appears to have been carelessly maintained should be checked very carefully in respect to all the working parts.

2. PTO drive. Check the condition of the bearings in the supporting hangers and the bearings or bushings in the universal joints. Does the telescoping portion work freely? Is the PTO coupling the same size as the PTO shaft on your tractor? Some tractors have 1¼-inch diameter PTO shafts, and others have 1⅜-inch diameter PTO shafts. Conversion kits generally are available for tractor or baler.

3. Gear cases. Open all gear cases and inspect condition of gear teeth. If they are pitted and scored, you may have an expensive repair bill.

4. Engine. If the baler has its own engine, check the same items as on any stationary engine. Do plugs have oily desposits? If so, it may be an oil burner.

Check compression by hand cranking. If compression seems weak, squirt some engine oil into each cylinder through spark plug hole. Reinstall plugs, and crank by hand again. If this restores compression, the engine probably needs a ring job. If oil does not restore compression, valves may need grinding.

Also, check such things as the radiator and hoses, air cleaner system, fuel tank and lines, and battery. Does it start readily?

5. Needles. Needles must be aligned properly to prevent wear and breakage. If they are worn or twisted, they will need replacing.

6. Plunger blocks. Do the plunger blocks provide close fit into baler chamber? Excess clearance indi-

EXAMINING A USED BALER before purchasing can save you headaches later on. The knotter can be one of the main trouble spots. Check gears for broken, chipped, or worn teeth.

cates wear. Worn blocks will need replacement.

7. Knotter. This can be one of the main trouble spots. Check the gears for broken, chipped, or worn teeth. Observe whether the worm gear has been adjusted in an effort to correct for worn parts.

8. Belts and sheaves. Examine all belts as well as the sheaves upon which they operate. If all the various tension-adjusting devices are near their limit, you may have to replace several belts in the near future. Check for signs of breaks or other injury to belts. Look at undersides as well as topsides. Any damaged sheaves will need to be repaired or replaced.

9. Sprockets and chains. Wear on roller chain links generally indicates that sprockets are out of line. Check to see if sprocket alignment can be corrected. Worn chains and worn sprocket teeth often occur together. Replacement of all excessively-worn chain drive parts will be necessary.

10. Slip clutches. Are faces rusted together? If so, they have not been giving protection, and drive members beyond the clutches may be damaged. If the slip clutch faces are worn excessively, they have operated too often, and some part of the baler beyond the clutch has not been working properly.

11. Bearings and shafts. Check all the shafts and bearings for free play. Have another person turn the machine slowly by hand while you check each bearing. Excess free play indicates a worn shaft, worn bearing, or both.

12. Tires and wheels. Normally, tires should not be worn excessively, unless the baler has been transported extensively on hard roads.

Check for damage to sidewalls, caused either by underinflation or cuts caused by hitting trash.

Jack up each wheel and check for free play in the wheel bearing by attempting to "rock" the wheel on the shaft. If the wheel seems loose, remove the hub cap and inspect the bearing. In some cases, proper operation can be restored by simply tightening the nut on the spindle. If the bearing itself is worn, replacement probably will be necessary.

13. Parts and service. Is there a local dealer who sells the make of baler you are considering?

Does he have an adequate supply of repair parts and experienced service personnel?

Any machine eventually is going to require repair parts. Any extra delay in obtaining parts for your baler in the busy season is almost certain to cost you many dollars of loss in crop value.

Colvard to Mississippi

Dr. Dean W. Colvard, dean of agriculture at North Carolina State College since 1953, will become president of Mississippi State University July 1.

A graduate of Berea College in Kentucky in 1935, he earned his master's degree in animal science from the University of Missouri and his doctorate from Purdue University. From 1938 to 1946, he was superintendent of research stations at Swannanoa, Waynesville, and Laurel Springs, North Carolina. He joined the animal industry department at North Carolina State in 1947 and was named department head a year later.

J. E. Stallard retires

J. E. Stallard, in charge of Wisconsin's DHIA program since 1944, retires this year.

A graduate of the University of Wisconsin in 1913, he farmed for himself and spent 17 years as a county agent before joining the university staff.

Instrumental in developing testing labs in almost every Wisconsin county, Stallard's efforts helped to double the number of cows in the DHIA program. There were more than 390,000 last year.

Bottema Holstein shatters national record

A 4-year-old Holstein, Zeldenrust Mistress Roxann, owned by Ray Bottema, Beech Grove, Ind., has recently completed a 365-day lactation in which she produced 35,578 pounds of milk, 1,636 pounds of butterfat.

This is not only the national butterfat record for registered Holsteins milked three times daily, regardless of age, but it is the second highest butterfat record ever made by a registered Holstein cow.

The record is second only to the one completed in January by Princess Breezewood R A Patsy, owned by Gelbke Brothers, Ohio, that produced 1,866 pounds of fat. In the 3-time division, the previous high was 1,529 pounds butterfat, posted in 1959 by Jasmine Design Mercedes, Budd Farm, Belleville, Mich.

The new champion also holds the national record for junior 2-year-olds milked 3x. In 1958 she produced 26,817 pounds milk, 1,101 pounds butterfat.

A daughter of Zeldenrust Master Stroke, bred in the Bottema herd, "Roxann" is classified Excellent. Her most recent testing period was started at the age of 4 years, 2 months. She averaged more than 97 pounds of milk a day for the entire year.

You're right, Bossy – but really, it's not too difficult to tell a Girton Deluxe "atmospheric" Farm Tank from another make, especially when you're cleaning one. You see, Girton's unique one-piece counter-balanced cover lifts up as easily as the cover on a little jewel box. When up – all interior surfaces are in full view and well within reach – even for the little lady!

There are no surfaces you can't see, no bridges in your way to hide dirt or strain your back under, no sharp corners.

What about automatic cleaning? The low height and one-piece cover of the Girton Deluxe make it quicker and less expensive to hand clean than to clean mechanically. Honest Injun!

THIS IS A GIRTON DELUXE FARM TANK

So, if you're going to buy a Farm Tank, do yourself and your whole family a favor – get an easy-to-clean Girton Deluxe! Send for our fully illustrated bulletin.

GIRTON MFG CO
MILLVILLE, PENNSYLVANIA

That's our story in a nutshell—folks are talking with greater enthusiasm than ever before about CLENESCO dairy farm products. The good news travels from neighbor to neighbor about safe and skin-gentle CLENESCO SANITIZER for bulk tanks, milking machines and utensils, and non-foaming CLENESCO CIRCULATE and PIPE LINE ACID for pipe line milking systems. You'll find there's a Cowles CLENESCO product to handle any milkhouse clean-up problem.

CLENESCO®

Send for free sample of CLENESCO SANITIZER. Money back guarantee on all CLENESCO products.

Cowles
1885—75th Anniversary—1960
CHEMICAL COMPANY
7016 Euclid Avenue • Cleveland 3, Ohio

Allen Hetts' cows went after flavored silage just like pasture

Oat silage with Grass Silo-Joy® forage flavor preservative did better job of making milk than pasture in July and August

Allen Hetts (right) and herdsman, Hiroshi Hashimukai (Japanese agricultural trainee), shown with part of the Crescent Beauty Holstein breeding herd. One-third of the cows have production records of over 600 lbs. fat on twice-a-day milking.

When drouth burned out the grass on Crescent Beauty Farm at Ft. Atkinson, Wisc., Allen Hetts started feeding oat silage. "I fed about 150 tons during July and August to my 25 Holsteins and 18 heifers. They really loved this silage and went after it like green pasture," says Mr. Hetts.

One pound of Grass Silo-Joy was used per ton, spread over the load. It helped make topnotch feed with a clean sweet smell that cows relished—even though oats were cut in the late milk stage. Mr. Hetts states that his cows maintained good flesh and milked heavier in July and August compared to the same months a year ago.

Silo-Joy stops silage stink...prevents milk off-odor . . . increases silage intake...puts lush pasture palatability in every feeding.

TWO SILO-JOY® PRODUCTS

- **Grass Silo-Joy** (grass silage flavor) —preserves the natural freshness of all ensiled green forages.
- **Corn Silo-Joy** (corn silage flavor) —keeps the appealing flavor and aroma of well preserved high moisture corn.

Use as little as 1 lb. per ton of grass silage . . . as little as ½ lb. per ton of corn silage. Suggested retail price 77c per lb.

SILAGE INTAKE UP 10 LBS.

The 300 registered Angus cows on CT Ranch at Miami, Oklahoma, upped silage intake 10 lbs. per head daily when we fed out our last crop, reports M. K. Hutts, ranch manager.

We thought we were getting excellent daily consumption (35 to 40 lbs. per head) before, but the herd handled 1½ tons more per day of the Grass Silo-Joy treated silage.

The cost of getting this increased tonnage in the herd was nearly negligible. At 77c per lb., the Silo-Joy added only $1.16 for the 1½ tons of extra daily intake.

OVER 50,000 TESTS

Vo-Ag instructors and county agents have conducted over 50,000 feeding trials with Silo-Joy flavored silages and hay. Their reports reveal that feed intake was improved on 95% of the tests with silage for dairy cattle . . . on 97% with hay for dairy cattle . . . on 92% with silage for beef cattle . . . on 99% with hay for beef cattle.

See your feed dealer for supplies of both Silo-Joy products. Also ask him for FREE one cow feeding sample or return coupon to us.

FLAVOR CORPORATION OF AMERICA

3037 N. Clark Street · Dept. HD-610 · Chicago 14, Illinois

Please send FREE one cow feeding sample of Grass Silo-Joy and Corn Silo-Joy.

Name_____

Rural Route_____

Town_____ State_____

I make about _____ tons grass silage . . . _____ tons corn silage per year.

My feed dealer is_____

My favorite feed brand is_____

Approved Silo-Joy manufacturers:

ALABAMA
Farm Service & Supply Co.
Florence, Alabama
ARIZONA
Van Waters & Rogers, Inc.
Phoenix, Arizona
CALIFORNIA
Van Waters & Rogers, Inc.
Los Angeles, California
Van Waters & Rogers, Inc.
San Francisco, California
COLORADO
Van Waters & Rogers, Inc.
Denver, Colorado
GEORGIA
Feedright Milling Co., Augusta, Ga.
IDAHO
Van Waters & Rogers, Inc., Boise, Ida.
INDIANA
Anchor Serum Co. of Indiana, Inc.
Indianapolis, Indiana
IOWA
Alstott Feed & Supply Co., Inc.
Ft. Dodge, Iowa
Ames Reliable Products Company
Ames, Iowa
Foxbilt Feed Company
Des Moines, Iowa
Kidman's Standard Stock Powder Co.
Des Moines, Iowa
Oelwein Chemical Co., Inc.
Oelwein, Iowa
Pioneer Laboratories, Inc.
Des Moines, Iowa
S & O Products Company, Inc.
Marshalltown, Iowa
KANSAS
Topeka Mill & Elevator Company
Topeka, Kansas
KENTUCKY
Pan American Mills, Inc.
Bowling Green, Kentucky
Robinson Milling Co.
Somerset, Kentucky
Sun-Ray Mills, Inc.
Lexington, Bowling Green, Somerset and Greenville, Kentucky
MARYLAND
Farmers Cooperative, Inc.
Frederick, Maryland
MINNESOTA
Midland Cooperatives, Inc.
Minneapolis, Minnesota
North East Feed Mill
Minneapolis, Minnesota
MISSOURI
Houston Feed Co.
St. Joseph, Missouri
Marco Mills, Inc.
Joplin, Missouri
Quisenberry Mills, Inc.
Kansas City, Missouri
NEBRASKA
G. E. Conkey Co.
Nebraska City, Nebraska
H & L Sales Company
Grand Island, Nebraska
NEW JERSEY
L. J. Barrett & Company
Clinton, New Jersey
NEW YORK
Cooperative Feed Dealers, Inc.
Binghamton, New York
International Stock Food Corp.
Waverly, New York
NORTH CAROLINA
Anchor Serum Company of Carolina
Charlotte, North Carolina
OHIO
Gold Leaf Mineral Co., Bluffton, Ohio
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Salt Lake City, Utah
VIRGINIA
Gloco Milling Company
Charlottesville, Virginia
Culpeper Farmer's Cooperative
Culpeper, Virginia
Producer's Cooperative Association
Richmond, Virginia
WASHINGTON
Van Waters & Rogers, Inc.
Seattle, Washington
Van Waters & Rogers, Inc.
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WISCONSIN
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Clifford, Wisconsin
Ardex Sales Co.
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Chippewa Falls, Wisconsin
BRITISH COLUMBIA
Van Waters & Rogers, Inc.
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ONTARIO
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SWITZERLAND
Interchemie A.G., Zurich, Switzerland

TORNADO funnel of fury

A tornado moves from southwest to northeast. Your life may depend on getting out of its path.

by Grover Brinkman

A MAN who survived a tornado at Desloge, Mo., later received a letter from a farmer living near Addieville, Ill., enclosing an invoice bearing his name and address. It had been blown to the Illinois farm by the tornado — more than 100 miles, airline distance.

Another Illinois woman found a church collection envelope that had been blown from Flat River, Mo., even farther away.

This is mute evidence of a tornado's fury. Often, tornadoes are freakish, hedge-hopping like kangaroos, striking one farm, missing the next. But, one thing about a tornado never varies. They invariably travel from the southwest into the northeast.

To read this will take but a few minutes, but it may save your life if you remember that the funnel-like clouds always rear in the southwest, travel to the northeast.

Usually, tornadoes cut a narrow swath. Some of them are only a few hundred yards in width, most of them less than a half a mile in damageable area. So, if you see a tornado-like cloud approaching, the best way to protect yourself is to run — at right angles to the approaching funnel. This means to the northwest or the southeast.

Moments count!

Seconds even count! Get the car, or walk, or run. But get out of its path! Sometimes there isn't time. Then your best bet is shelter — the southwest corner of the basement. If the house blows off the foundation, this would be the safest spot. First, open windows to keep your house from exploding. Remember, if it collapses, falling bricks and timbers crashing into the basement are just as dangerous as the storm itself.

A roadside ditch often is your best bet. A man saved himself on an open prairie by crawling into a highway culvert.

But, if you have a few minutes before it strikes, try getting out of its path, for nothing is safe inside that whirling funnel. Twisters vary in their speed. Some travel slow, others much faster.

Tornadoes by the dozens have struck the Midwest in the past year, and another season will see the same thing. Watch your barometer. If it is steadily falling, watch the southwestern sky. With radio and TV storm warning programs, your chance to outlive a tornado grows better each year.

But, never underestimate the fury of a tornado. A twister capable of driving wheat straw deep into oak trees, of denuding chickens of their feathers as they run, of lifting and smashing farm buildings like matchwood, has no respect for human life.

Incentive payments . . .

(Continued from page 615)

sometimes not easily understood. Some short cut method of profit calculation seems best for profit sharing plans.

Here is how one dairyman computes "profit" for this purpose:

The plan should not hamper management decisions the operator has to make, and should not be an attempt to shift financial risk to the hired man. Most important, it must not be a substitute for good wages and good labor relations.

Receipts		Expenses	
Milk sales	$_____	Feed bought	$_____
Calves sold	_____	Homegrown grain, straw, and roughage	_____
		Hired labor	_____
Total receipts	$_____	Current miscellaneous expenses	_____
Less total expenses	_____	Insurance	_____
		Use of equipment	_____
		Use of cattle	_____
Profit	$_____	Total expenses	$_____

The hired man receives a basic wage plus 10 per cent of the profit. The cattle use charge is $5 per head per month. The equipment use charge is 10 per cent of the value of equipment per year on equipment allocated to the dairy.

Any one of the expense items included could be eliminated, or others could be added. The fewer items involved, the simpler the calculation. The more items, the more accurate the profit calculation.

Some do's and don'ts . . .

An incentive plan should reward the hired man for improved performance, and should be based on something he can help control. The plan ought to be simple and easily understood, and the payment should be large enough to induce better performance. If possible, payment should be made monthly rather than annually.

It's a good idea to put the agreement in writing. This helps both parties understand the arrangement, and assures the hired man that the offer will be fulfilled.

The agreement should include the following points:

- The purpose of the agreement.
- Responsibilities of hired man.
- The method of calculating and making the payment.
- The duration of the agreement.
- A method to arbitrate disputes.

An effective incentive plan requires planning. It needs to be thoroughly discussed with the hired man prior to its start. The man must understand that the manner in which he performs his job influences the size of the payment. An agreement that fulfills the principles discussed here is likely to satisfy both the farmer and his hired man. **THE END**

National Holstein Champions

Miss Phyllis Poehls and John Carlin have been named National Holstein Champions by the Holstein-Friesian Association of America. Both will be guests of honor at the Diamond Jubilee Convention of the association at Syracuse, N. Y., May 30 to June 2.

Miss Poehls, 18-year-old daughter of Mr. and Mrs. Louis Poehls, Belvidere, Ill., has developed a herd of 12 registered Holsteins during her 8 years in 4-H work.

The project literally started from scratch in 1952 when she borrowed money to buy her first club calf. She repaid the loan by mowing lawns and baby sitting for neighbors and with wages she earned as tractor driver and milking machine operator on the family's 160-acre farm.

Phyllis was a member of Boone County's 4-H team at the Illinois State Fair in both 1957 and 1959, was high scoring individual last year. She also competed at the National Dairy Cattle Congress as a member of Illinois' 4-H team, which placed fourth last year. She is a freshman at Northern Illinois University in DeKalb where she is majoring in extension education.

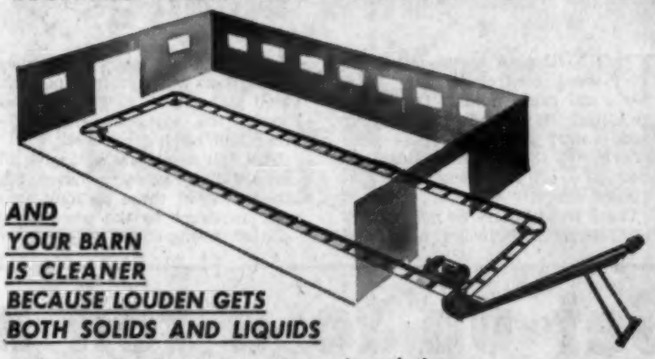
John Carlin, the son of Mr. and Mrs. J. W. Carlin, Smolan, Kans., is a sophomore at Kansas State University. A veteran of 11 years of 4-H and FFA projects, he has developed a herd of 12 registered Holsteins valued at $5,450. In addition, he owns 19 more in partnership with his father.

John started his own herd in 1949. Last year he sold more than $2,800 worth of milk from his 6 cows. Also a successful dairy cattle judge, John has had several animals in the Junior All-American contest, and in 1958 represented Kansas at the National 4-H Club Congress. Over and above his dairy cattle work, he has completed 13 projects in beef feeding, hogs, wheat, alfalfa, and tractor maintenance.

JOHN CARLIN

PHYLLIS POEHLS

LOUDEN CLEANS YOUR BARN WHILE YOU DO OTHER CHORES



AND YOUR BARN IS CLEANER BECAUSE LOUDEN GETS BOTH SOLIDS AND LIQUIDS

With a Louden cleaner in your barn, all you do is flip a switch. Your Louden "Transfer-type" Barn Cleaner takes over while you go to other chores. And what a job it does!

Gets both solids and liquids

Gutter chain travels at 14 ft. per minute. Stays in the gutter at all times. Each paddle deposits its load into the elevator hopper. Elevator paddles sweep through hopper at 55 ft. per minute. Fast enough to carry both solids and liquids up and out, with no run-back.

Longer lasting

New designed chain is made of silicon-bearing, high carbon steel. It's tough and will last for years. Links are self-cleaning. Won't freeze under ordinary conditions due to dry, crusty litter. And, if space is a problem the main drive unit and crossover can be located outside the barn.

Get complete information on how Louden can help give you a cleaner barn. *Mail the coupon today. There's no obligation.*

The Louden MACHINERY COMPANY
46 West Court Street, Fairfield, Iowa

Please send me, at no obligation, complete information on the Louden Barn Cleaner.

NAME _____

BOX _____ ROUTE NO. _____

CITY _____ STATE _____

DAIRY

• Baird Hammond, General Manager of General Cochran Farm, Ft. Plain, N. Y., home of one of the outstanding Holstein herds in the country, controls hornflies this fast, easy way. When hand-dusted as directed, Du Pont "Marlate" methoxychlor does not result in residues in milk.

For fast, easy, economical fly control hand-dust Du Pont Marlate® methoxychlor

No other insecticide is easier or more economical to use than methoxychlor. No other gives longer-lasting, more effective protection. One tablespoonful of Du Pont methoxychlor ("Marlate" 50 or Dairy Cattle Insecticide) per cow, applied just as it comes from the bag, will control hornflies for about three weeks. One 4-lb. bag treats 20 to 30 cows for a season.

Also, use "Marlate" methoxychlor to kill flies in the barn and on the premises. For either use, simply follow directions on the bag.

On all chemicals, always follow label instructions and warnings carefully.

DU PONT

BETTER THINGS FOR BETTER LIVING ... THROUGH CHEMISTRY

Careless use of 2,4-D . . .

. . . has caused widespread damage to susceptible crops in the Midwest. Losses can be prevented by taking the following precautions.

by M. B. Linn

DO YOU plan to use 2,4-D for weed control in your corn and grain fields? Or 2,4,5-T for killing weeds and brush in your fence rows? If you do, plan your spraying so that you won't damage your own or your neighbor's susceptible crops.

These weed killers do not "know" the difference between weed and other broad-leaf plants. They are toxic to a wide variety of cultivated plants such as grapes, tomatoes, cotton, soybeans, chrysanthemum, and birch trees.

The first symptoms, drooping and curling of the younger leaves, may appear within three or four hours after exposure to the weed killer.

Later symptoms include fan-shaped leaves with prominent, almost parallel veins. The top and lateral shoots become twisted. The stem and tap root may split open near the soil line.

Symptoms may persist for several weeks following exposure to weed killers. Normal growth will then be resumed unless additional exposures have occurred. Most rapid development of symptoms and most rapid killing of plants take place during the early part of the growing season. Plants are likely to be least susceptible when growing in soil with a low moisture content or low fertility.

If tomato plants are exposed only to light dosages of 2,4-D or 2,4,5-T, leaves become distorted and some of the flowers drop off. The fruit becomes heart-shaped and tends to ripen when small.

At heavier dosages, tomato foliage is more severely damaged and the fruit will crack open. New and unaffected foliage often will cover up symptoms of previous injury on the older, lower leaves.

Cultivated varieties and wild species of grape are perhaps the most sensitive of all common plants to weed-killer injury. They are useful as indicator plants in determining if 2,4-D or 2,4,5-T has contaminated a farm or garden.

In soybeans, puckering and distortion of the leaves is a common symptom. Other symptoms such as curvature of the stem and failure to set pods may not be apparent until the plants have matured and lost their leaves. Weed-killer injury in soybeans is sometimes difficult to diagnose since virus diseases or wind and rainstorms can cause similar reactions.

Half-mile radius . . .

Much of the injury to cultivated plants in Illinois has been caused by drifting weed-killer mist or fumes. Only a few tiny droplets on each plant can cause severe damage or death. Injury to tomatoes has been found more than one-half mile from the sprayed area.

The smaller the weed-killer droplets, the longer they will float in the air. It has been calculated that fine droplets released only 10 feet above the ground in a 3 mile-per-hour wind can be carried for 1 mile before settling to the ground.

The higher the pressure and the smaller the nozzle-opening used in spraying, the greater will be the number of tiny droplets discharged into the air. Hollow or full-cone nozzles cause more misting than do flat-fan-type nozzles.

The low-volatile esters and the amines do not give off fumes as readily as do the high-volatile esters. However, all forms can cause injury from drifting mist.

Fumes from the high-volatile esters may arise from sprayed weeds and grass for as long as three days after spraying. Thus, the combination of drifting fumes and mist makes this form exceedingly hazardous to use in areas of vegetable production or around the house and garden.

Follow these precautions . . .

Several precautions will reduce to a minimum the possibility of injury from 2,4-D and 2,4,5-T. Unless these valuable agricultural chemicals are applied with care, their use in the future may be restricted by legislation.

1. Do not use the high-volatile esters unless you understand thoroughly the hazard to suscepti-

The author is professor of plant pathology, department of plant pathology, University of Illinois.

Get up to a ton more milk

FROM EVERY COW IN YOUR HERD

Feed PIONEER Dry and Freshening

BEFORE CALVING... This cow was fitted on the PIONEER Program for 60 days before calving. Note the excellent "dry cow" body condition.

AFTER COMPLETING RECORD... The same cow after having produced 23,044 lbs. of milk and 941 lbs. of fat as a 4 year old. Note the extreme dairyness and exceptional body condition shown after this cow produced 11½ tons of milk.

HERE'S PROOF! Experienced dairymen know that many of their best cows just can't eat enough for sustained high production during the months right after calving. This means they've got to draw on body reserve—or production falls. That's why cows in good body flesh at freshening always out-produce those in a run-down condition. Experimental work also proves the value of taking better care of dry cows. Tennessee Experiment Station says, "A cow will produce from 12 to 20 pounds of extra milk for each pound of body weight gained while dry." Minnesota tests showed that dry cow feeding increased production over a *ton of milk per cow!* Similar results have been shown from many other experimental stations, DHIA records, and herd testing programs.

Experimental data proves the real value of feeding dry cows an ample ration. It's like putting money in the bank, so you can draw on it later when the need is greater.

In fact, 600 pounds of Pioneer Dry and Freshening will yield an extra ton of milk per cow. That's a profit of $66 per cow, based on feed cost of $4 per cwt., milk sold at $4.50! Multiply that by the number of cows in your herd and you'll see why we say Pioneer Dry and Freshening will pay a real return on your feed dollar investment.

PIONEER, the feed of champions

Competitively priced for every herd. In the show ring or in the stanchion, Pioneer-fed cows are winners. Breed class leaders and prize-winning cows at leading fairs, shows, and expositions are fed Pioneer Dry and Freshening feed. You don't need to raise show animals to get the real pay-off from this great dairy feed. The biggest prize of all is the sustained high production made possible when you feed Pioneer Dry and Freshening during the dry period and for 3 months after freshening. You'll like the price, too. Compare before you buy. GET PIONEER DRY AND FRESHENING AT YOUR LOCAL DEALER'S.

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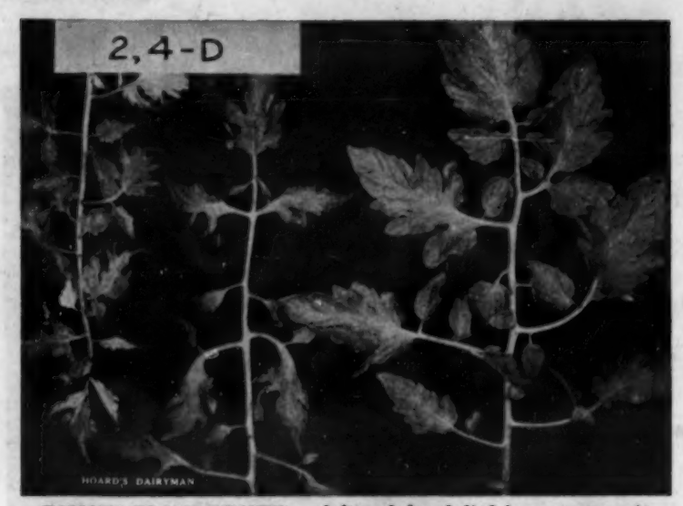

TOMATO PLANT LEAVES on left curled and died from exposure to small amount of 2-4-D drift. Normal leaves are shown on the right.

ble crops from drifting fumes.

2. Do not use any form of 2,4-D or 2,4,5-T within one-half mile of sensitive crops such as grapes, tomatoes, and cotton, regardless of wind direction.

3. Use as low a pressure as possible and a reasonably high gallonage of water per acre. This should never be less than 10 gallons per acre and preferably more.

4. Calibrate the output of your sprayer and follow the general directions for its use given by the manufacturer. Our agricultural engineers suggest flooding type, flat-fan nozzles instead of the conventional flat-fan types for use in the neighborhood of susceptible crops.

5. Keep one sprayer solely for the application of 2,4-D and 2,4,5-T. It is very difficult to remove all traces of these plant-toxic chemicals from the tank, pump, supply lines, and nozzles by any common cleansing method.

6. Use smoke trails to determine wind direction and plan your spraying so that wind or air currents will not carry the weed-killer mist in the general direction of sensitive crops.

7. When spraying grass areas near or around trees and shrubs, use weed killers only in amounts sufficient to wet lightly the weed leaves. Avoid applying the spray to slopes immediately above valuable plants.

When using knapsack or power sprayers with a hand-held boom or gun, make sure that a minimum of mist is discharged into the air by using low pressure and keeping the spray directed downward.

8. When buying insecticides or fungicides, insist that these be in factory-sealed containers and not in used containers that may be contaminated with 2,4-D or 2,4,5-T.

9. Granular forms of 2,4-D are now available for broad-leaf weed control in lawns and other grass areas. These forms are less likely to volatilize and drift than are liquid sprays and are safer to use in the vicinity of sensitive crops.

The new, inverted-emulsion forms of these weed killers can be used, if adequate equipment is available, for weed and brush control along fence rows and ditch banks. When properly mixed, these formulations are much thicker than conventional spray liquids and resemble mayonnaise in consistency. There are no fine droplets; hence there is practically no chance of drift.

Several new herbicides for preemergence weed control in cornfields have been developed and tested. If possible, substitute one of these for 2,4-D if you must spray weeds in the neighborhood of susceptible crops. Contact the weed-control specialist in your state college of agriculture for the names of these chemicals and how to use them.

75 years ago...

There is an "eternal fitness of things" in fowl and hog and egg production, it seems, according to the poulterers whose sayings we read by fits and starts. That is, so to speak, there is a dairy and a beef breed in hens as well as cows.

Then a hen is an egg-machine the same as the cow is a milk-machine, and the food that goes in at the mouth gives character to the products. Starved and cold hens lay starved eggs, or stop business, just the same as starved and half-starved frozen cows give starved milk or "dry up" — largely the latter.

Again, the prodigal layer of eggs throws her soul into the business and doesn't show up as a good table fowl so far as carcass is concerned any more than the grand dairy cow does in old cow beef when she is "of age" and comes to the block — while the plump and luscious fowl for the table has never astonished the world at egg laying any more than the smooth and beefy cow has in making loud demands for butter tubs.

The principle that you "can't have your cake and eat it, too," is also applicable to hen economy. Get you a dairy hen before you go to hunt the eggs.

W. D. Hoard

Prevent grass silage spoilage with antibiotic action!

SILOTRACIN

Silotracin is the new silage preservative that prevents spoilage, protects the protein value of forage crops and stops offensive odors. It does all this *antibiotically*.

Silotracin is more than just a new product. It's a whole new concept in grass silage preservation. Silotracin's antibiotic action discourages the harmful bacteria in the silo which cause rotting and foul odors. At the same time, it encourages those beneficial bacteria that turn sugars and starches in your freshly chopped grass into the necessary preserving acids (lactic, acetic, propionic).

Easy-to-use Silotracin is non-corrosive, cannot harm machinery or equipment. It's completely safe for humans and animals. **There is no antibiotic left in the finished silage, none can appear in the milk.**

Silotracin makes it possible for you to make better silage every time in all types of silos. Ask your feed dealer for a silage preservative that contains Silotracin. It costs no more than ordinary preservatives. Remember though, as good as Silotracin is, it does not lessen the need for effective packaging and sealing of the forage. Silotracin is a product of the Animal Nutrition Dept., Commercial Solvents Corporation, 260 Madison Ave., New York 16, N. Y.

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The specially-designed Patz Barn Cleaner chain actually rests at the point of greatest stress. The drive sprocket pushes each link on its way — to eliminate the link bending pull of excess loads around corners and through the drive sprocket. There are no pins to rust, bend, bind, stretch or break — yet, it's a flexible chain with a smooth rolling action that makes 90 degree left or right hand turns — 45 degree elevations.

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The Patz Co. is the originator of circular, Pitless Barn Cleaners. Today, many of the original installations are still providing satisfactory trouble-free service. So why settle for less than a Patz — America's No. 1 Barn Cleaner. Get all the Patz Facts First. You'll be glad you did today, grateful for years to come.

The PATZ Co.
Pound, Wisconsin

DAIRY FARM HOME

by Margaret Speers

Menus stump you . . .

. . . when you're eating out in hotels or unusual restaurants? Do they leave you wondering what foods could possibly belong to such fancy names? Or, perhaps you don't even have to leave home to be baffled; cookbooks, too, may toss around some fancy terms and foreign phrases that are outside your vocabulary.

If menus have a way of bewildering, here's some help for you. Make it a game in your family and practice saying these words and stating their meanings. Then you will get great satisfaction out of translating those fancy menus your next time out.

Some French terms . . .

a la carte (a la kahrt') — meaning to order from a whole list, not a set menu.

a la Russe (a la rus') — (here pronounce **u** like **i** in "dirt") — this is a French term meaning prepared in the Russian manner.

a la Newburg (a la noo' burg) — this means cooked with a sauce of cream, egg yolks, wine, and butter.

au gratin (oh grah-tan') — prepared with a top crust of grated bread, browned crisp.

au jus (oh zhu') (pronounce **zh** as **z** in azure) — served in its natural juice or gravy.

bechamel sauce (bay-sha-mel') — a white sauce of milk, flour, butter, onion, carrot, seasonings.

bisque or **bisk** (bisk) — this is American as well as French and is a thick, rich soup from fish or game.

blanc-mange (blah-mahnzh') — a flavored milk dessert thickened with cornstarch, Irish moss, flour, or gelatine, usually shaped in a mold.

bouillabaisse (boo-ya-bes') — a fish stew or chowder popular in the south of France.

bouillon (boo-yawn') — a clear stock soup not as strong as broth but stronger than consomme.

brioche (bree-ohsh') — a feathery yeast cake, popular in France as a breakfast roll.

cafe au lait (kah' fay oh le) — a drink of hot coffee and scalded milk.

cafe noir (kah' fay nwahr) — black coffee.

canape (ca-na-pay') — a small piece of fried or toasted bread topped with appetizers.

Camembert cheese (ka-mam-ber') — a soft, highly-flavored cheese, originally made in the vicinity of Camembert, near Argentan, France.

caramel (kar' a-mel) — pronounce the first **a** as in **am**, not as in **car**) — it means burnt sugar.

caviar (kav-i-ahr') — the roe or eggs of sturgeon or other large fish, pressed, salted, and used as a relish. Sometimes spelled **cavaire.**

chateaubriand (shah-toh'bree-ahn) — a brown sauce with fat, lemon, parsley, seasoning, and Spanish sauce. Sometimes thick steak cut from center of fillet of beef.

crepe suzette (krep' su-zet' or krap soō zet) — a thin, sweet pancake, folded in quarters or rolled and heated in a sauce of butter, sweet hot orange, lemon, or tangerine juice, and a liqueur such as curacao. Usually set ablaze for serving.

demitasse (d-mee'-tahs' or dem'i-tas') — a small or half-cup black after-dinner coffee.

entree (on-tray) — a dish served before the main course or between courses. This is also an American term and then may be used to refer to the main course also.

filet mignon (fee-lay' mi-nyon) — a round, relatively thick piece of beef garnished with pork or bacon before cooking.

hors d'oeuvre (awr-du'vr — pronounce **u** like **i** in **dirt**) — a relish or appetizer served before a meal.

julienne (zhu-lyen' or joo-li-en') — this refers to vegetables cut in match-like strips.

lyonnaise (ly-oh-nayz' or lee-oh-nayz') — refers to a food which is pan fried and seasoned with onion and parsley.

maitre d' hoetel sauce (me'tr doh-tel') — a yellow sauce of butter, lemon juice, parsley, egg yolk, and seasonings.

Neufchatel cheese (new-sha-tel') — a highly flavored, soft-type cheese. Originally from Neufchatel in France.

parfait (pahr-fay') — a rich dessert of egg and whipped cream or of syrup, egg or whipped cream, and flavoring, frozen without stirring. The term also commonly refers to ice cream served in a tall-stemmed glass, topped with a syrup and whipped cream.

petit four (pe-tee foor') — small tea cakes or sponge cakes, usually ornamentally iced.

ragout (ra-goo') — a highly-seasoned stew of meat and vegetables.

Roquefort cheese (rock'fohr) — a hard, crumbly cheese originally made in Roquefort, France. Its flavor is caused by a blue mold and the cheese is characteristically mottled by this mold. The American type of this cheese is called blue cheese.

roux (roo) — a cooked mixture of fat and flour used to thicken sauces.

saute (soh-tay') — refers to a food browned quickly in a small amount of fat in a frying pan. In America, the act of cooking in this way is called **sauteing.**

table d'hote (ta-bl doht') — this means to choose from a pre-arranged menu. Literally translated it means "table of the host."

More terms from other lands . . .

antipasto (ahn-te-pahs'toh) — where Italian foods are served, this is the first course or the appetizers. Usually consists of assorted relishes, smoked or pickled meat, or fish, and so forth.

baba (bah'bah or ba'bah) — this is a yeast-raised cake, often flavored with rum, fruit, or fruit juices. The term is considered French, Polish, or Russian.

Edam cheese (ee'dam) — a Dutch pressed cheese of yellow color, made in balls usually colored red outside.

gruyere cheese (gree-yer') — a pressed, pale yellow, whole-milk cheese of nutty flavor, made chiefly in Switzerland.

gouda cheese (gow'da) — a small, round hard cheese.

hollandaise sauce (hahl'an-dayz') — a yellow sauce of butter, vinegar, or lemon juice, eggs, and seasonings.

kabob (ka-bob') — an Oriental dish of small pieces of seasoned meat roasted on a skewer. Sometimes spelled **cabab** and **cobob.**

kuchen (koo-kin) — a cake, often coffeecake (German).

maraschino cherries (mar-a-skee'noh) — maraschino is a liqueur distilled from the fermented juice of the marasca, a small bitter wild berry. The term and the process is Italian in origin. In America, Royal Ann cherries, picked unripe, are pitted, then cooked and colored in syrup, and flavored with imitation maraschino liqueur.

mate (ma'ta or mat'a) — an aromatic beverage similar to tea, made from the roasted leaves of the Paraguay tea. It has a refreshing and stimulating effect similar to that of tea and coffee but contains less caffeine and tannin and has no astringent qualities.

parmesan cheese (pahr'me-zan') — a hard, dry Italian pressed cheese of sweetish flavor, made from skimmed milk. Usually used in grated form.

rabbit (rab'bit) — a dish containing melted cheese usually served on toast (incorrectly called rarebit).

ravioli (rah-vyaw'lee) — a mixture of chopped meat, cheese, and other foods (often spinach) cooked inside small folded pieces of noodle paste and served with a seasoned sauce.

smorgasbord (smur'gohs-bohrd') — a Swedish type of luncheon or supper served buffet style and consisting of many appetizers, hot and cold meats, smoked and pickled fish, sausages, cheeses, salads, relishes, desserts. Often as many as 50 different dishes are served.

strudel (shtrōō'del) — a dessert of pastry made by rolling and baking a paper-thin sheet of dough spread with filling, usually of fruit.

zucchini (zu-kee'nee) — Italian summer squash, green, long, and slender.

zwieback (tsvee'bahk) — German in origin. Toast made from a specially baked bread. Called also rusk or Brussels bisquit. **THE END**

From Day to Day

by Lois J. Hurley

LAY down the cleaning sponge; empty the scrub pail; hang up the shovel and the hoe for on this fine June day I'm going to take you on a rocking chair tour of South Carolina and Georgia which will include Aiken, Charleston, Augusta, and Atlanta. We'll see gardens more beautiful than artists could create on canvas; houses that passed through the siege of the Civil War; buildings whose walls shook as feet of Revolutionary soldiers tramped by.

Shall we fly into this enchanted Southland? Not an intrepid air-borne creature, myself, I will take you by the hand and lead you aboard this huge wall-to-wall carpeted, foam upholstered plane that will soar us up to 20,000 feet and deposit us in Atlanta, Georgia in an hour and 45 minutes after we leave Chicago's Midway Airport.

Just relax and let the pilot fly the plane, as my daughter advised me. Look below at the beautiful mosaic of shades of brown and gray which gradually turn to red and green as we leave the Midwest and edge into warmer zones of southern Tennessee and Georgia with their red earth and greening landscapes. See the unbelievably intricate curves of rivers; the blue cups of small lakes; the teeny-tiny houses laid out in orderly rows as we pass over cities and towns.

Marvel at the beauty of the clouds which often blot out the far-away landscape completely. Surely we must be flying through Heaven and if we look closely we'll see bands of angels resting on the fluffy banks outside the plane window.

But before we can locate one, the hostess asks us to fasten our seat belts for the Atlanta landing. After a short wait, we're whisked over to Augusta in half-an-hour where our friends await to drive us 18 miles into South Carolina and the city of Aiken.

Historic homes of Charleston . . .

On Sunday, let's drive over to Charleston, a lovely trip of 120 miles. As we advance, we begin to see the live oak trees festooned with Spanish moss, earmark of the sub-tropics. We see wisteria vines that soar to the tops of trees and send down their showers of lavender or white cornucopias of bloom. We begin to reach the land of the azaleas that grow to tree proportions in banks along driveways or walls or stand alone in garden plantings.

Now, here's your ticket for the Sunday afternoon tour we're going to take of the historic homes of Charleston and we'll intersperse it with visits to the gardens which are open to the public at this springtime peak of their beauty.

The old houses of Charleston stand in a seven-block area that you can walk over in an afternoon, but more than 200 years of time is spanned. The oldest building on our tour was built in 1749; all are magnificent examples of 18th century architecture. One cost $80,000 when built in 1809.

The gardens of Charleston are exquisite tributes to man's imagination. The streets are narrow and in many spots the houses are close together. Yet, each tiny square and passageway is landscaped and profuse with bloom. Look through the grilled gates as we walk down the cobble-stoned "lanes" through the old city. Do you see bare alleys and garbage cans? Not in Charleston; each inch is utilized for beauty.

Now, it's the morning of the second day and we get aboard a boat to tour Charleston Harbor and visit Fort Sumter.

Where Civil War began . . .

In the midst of complete restoration which will include a fine museum, the shell-scarred walls of Fort Sumter enclose two and a quarter acres of barracks and gun emplacements and shelters on which one of the most significant pages of history was written.

Just a hundred years ago, come next April 12, Fort Johnson in Charleston Harbor fired a mortar shell at the Federal-held Fort Sumter and the tragedy of the Civil War began. Federal forces were forced to evacuate the post on April 14; Confederate forces occupied it and underwent terrific bombardment during 1863-64; for 22 months Fort Sumter withstood Federal siege and not until Confederate troops were withdrawn as Sherman's troops advanced north from Savannah was Sumter abandoned.

Do your eyes fill with tears you can't hold back and do shivers chase each other up and down your spine? Here we stand on this tiny bit of land into which the blood stains have long since soaked from view and look to the west over Charleston Harbor to the city and to the East to the rolling waters of the Atlantic and feel the presence of those who made history. I believe brave, besieged men leave an indelible mark on the quarters they occupied and in which they died, at least, on softies like me.

Before we step out of the past, let us follow a winding road back into the live oaks and pines for a visit to St. James Goose Creek Church, organized and built by Low Country planters and established as the Church of England in the Old Province in 1711.

Of rough-cast brick and stucco, the thick walls are crumbling, now, and a cold chill lies over the unswept interior. But unlatch the door into the walled-in pews in which planters and their families sat for worship, take a seat, and the past sweeps over you.

High overhead is the canopied pulpit, seen in most of the historic churches in this part of the country. The Ten Commandments, Apostles Creed, and Lord's Prayer are engraved on the stone walls beside the altar. At the foot of the altar is the final resting place of Dr. Francis Le Jau, founder of the church. The Royal Arms of England hangs over the chancel window and is credited with saving the church from destruction during the Revolutionary War.

Do you hear a rustling about in the shallow balcony behind you? Those are the slaves slipping into the rough pews built there for their occupancy, so they could attend worship with their masters.

The old church yard contains bricked-up graves dated back into the early 1700's. "Entered into rest . . . " the epitaphs read and what a lovely spot to lie asleep. Wisteria twines over the low wall; the dogwood casts a white shadow on the stones and birds sing in the live oaks. And an old negress locks the gate, accepts her tip, and shuffles down her cabin path. (To be continued.)

8212 and 8213. These pretty side-buttoning frocks are identical. 8212 is in sizes 12, 14, 16, 18, 20, 40, 42. Bust 32 to 44. Size 14, 34 bust, sleeveless, 5⅝ yards of 35-inch. 8213 is in sizes 3, 4, 5, 6, 7, 8 years. Size 4, sleeveless, 2⅛ yards of 35-inch. Two patterns, 35 cents each.
8345. You'll generate plenty of excitement in this pared-down sheath with its flattering neckline and short or three-quarter sleeves; a must in every wardrobe. Sizes 10, 12, 14, 16, 18, 20. Bust 31 to 40. Size 12, 32 bust, 3⅛ yards 35-inch; ⅛ yard contrast. Price 35 cents.
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8345
10-20
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3-8 yrs.
8186
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8285. These adorable summer-time outfits for a tiny boy or girl are such fun to sew. Use gay scraps for the boat appliqué. Sizes 6 months, 1, 2, 3 years. Size 1, girl's sunsuit and jacket, 1⅞ yards 35-inch; boy's sunsuit and jacket, 1¾ yards. 35 cents.
8186. Designed to flatter a woman's figure, this simple all-occasion style features a graceful yoke and easy pan-elled skirt. Sizes 34, 36, 38, 40, 42, 44, 46, 48. Size 36, 38 bust, short sleeves, 3⅝ yards 35-inch. Price 35 cents.
1378. This versatile daytimer is created to please the slightly shorter, fuller figure. It is ideal for the beginner in sewing — it's sew-simple! Sizes 12½, 14½, 16½, 18½, 20½, 22½, 24½, 26½. Bust 33 to 47. Size 14½, 33 bust, 4 yards 35-inch. 35 cents.
1378
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1542. Here is thrifty sewing for you. And ideal for gifts. Handy aprons take just 1 yard of gay fabric for each style. Sizes 12, 14, 16, 18, 20, 40, 42. Size 14, 1 yard 35- or 39-inch for each style. Price 35 cents.
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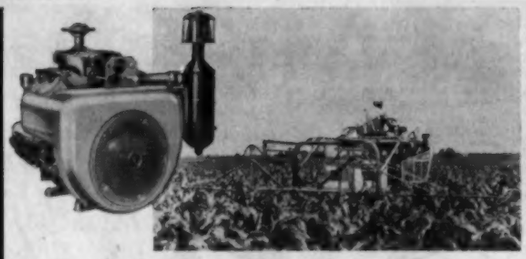

New HAHN HI-BOY Model 300 Self-propelled High-clearance Sprayer, made by Hahn, Inc., Evansville, Ind., provides most effective insect and weed control for corn growers, cotton and tobacco farmers. A 30 hp VH4D Wisconsin Engine supplies dependable power.

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POULTRY

by Joe W. Sicer

The egg sweating problem

Warm weather brings the problem of sweating eggs to producers having cool egg-holding facilities. Reduce this threat to quality by following these procedures.

COOL eggs will "sweat" whenever they are exposed to warmer air carrying a high-enough humidity. The danger lies in the fact that moisture on the shell increases the possibility that bacteria or molds may be picked up, get through to the inside of the egg and result in egg spoilage.

There also is the possibility that, if eggs are handled while wet, they will dry with soiled splotches showing on them.

Sweating is actually condensation of moisture from the surrounding air on the cold eggshell. It is just like the sweating of a pitcher of ice water on a hot day.

Technically, sweating of eggs depends upon what is called the dew point of surrounding air. By technical definition, the dew point is that temperature at which moisture in the air will condense out as liquid water. The dew point rises as relative humidity of the air rises until, at 100 per cent, relative humidity, dew point, and air temperature are the same.

In a poultryman's language, eggs will sweat if temperature in the egg-holding room is below the dew point for the air into which eggs are to be brought. The colder the eggs, the higher the air temperature into which eggs are brought, and the higher the relative humidity, the bigger will be the sweating problem.

Because the spread is so great between temperature of a refrigerated egg-holding room and outside air, it can really be a big problem in hot, humid weather.

Why it is harmful . . .

Even clean eggs have some bacteria and molds on their shells. So long as the eggshell stays dry there is not much opportunity for these organisms to get inside the egg. But moisture on the eggshell provides a means whereby these organisms may be able to move and find their way through the shell.

Of far greater importance is the danger of contamination if sweating eggs are handled while wet. It is practically impossible to handle moist eggs, egg cases, and fillers without getting your hands soiled, thus spreading bacteria and molds to the eggs under conditions which favor easy access of these rot producers to the inside of the egg. At best, eggs handled when wet will lose some of that clean, fresh appearance.

If moist eggs are placed in dirty cases or cartons, they can pick up dirt, stain, and possibly contamination from the container.

How it can be prevented . . .

One way to avoid the sweating problem on your own farm is to clean, grade, and case the eggs before cooling them. This, however, may bring up as many problems as it solves.

Unless eggs can be processed as each gathering is brought in, there will be some quality loss because of the delay in cooling. If eggs are washed, there will be an inclination to save the wash water from one gathering to the next. This is asking for trouble because of the possible build-up of bacteria and molds in the wash water.

If fresh detergent-germicide solution is used for each gathering, the practice of washing eggs as soon as gathered is fine.

Casing eggs before they have been cooled is not good practice. It often is wisest to cool eggs promptly and handle the sweating problem by other means.

Since sweating is caused by the relation existing between egg temperature and the relative humidity and temperature of the air into which eggs are moved, prevention must be based on control of one or more of these conditions.

1. You can lower the room temperature in which eggs are processed after they have been cooled.
2. You can lower humidity in the processing room.
3. You can raise temperature in the egg-holding room.

Temperature in the egg-holding room, however, must not be raised above 60 degrees or interior quality will be hurt. There are conditions, though, where eggs will sweat if the holding room temperature is held at 55 degrees but will not sweat if a 60-degree temperature is maintained. For instance, at a 78-degree room temperature and a 50 per cent relative humidity, eggs will sweat if brought out of a 55-degree holding room. They will not sweat, however, if the holding room temperature is 60 degrees. For short periods, egg quality loss from the 5-degree higher temperature will not be serious.

Where egg volume is big enough to justify the expense, a convenient and comfortable way to solve egg sweating is to use a room air conditioner in the processing room. This will lower both room temperature and humidity. If temperature in the processing room can be held down to 70 degrees, then a relative humidity of 60 per cent is needed before eggs brought from a 55-degree holding room will sweat. Usually, with an air conditioner in operation, the humidity will not be that high.

If of large enough capacity, a dehumidifier in the processing room will be helpful. For instance, at 80 degrees in the processing room eggs will not sweat from a 55-degree holding room if the relative humidity can be brought down to 40 per cent. If doors are opened frequently, letting in humid air from the outside, this may prove to be quite a job, however. Working conditions will not be as pleasant as in an air-conditioned room.

Nothing you can do will prevent sweating of your eggs after they leave your cooler if, while they are still cool, they are subjected to high temperatures and humidity enroute to market. During the sweating season, therefore, it is important to produce as clean eggs as possible, to use special care in egg cleaning operations, and to use only clean egg containers.

Where cleanliness prevails, egg sweating will not do great harm.

FOLLOWING is a list of plans available through the Hoard's Dairyman Plan Service. Check the plans in which you are interested and mail your order and correct fee to Plan Service, Hoard's Dairyman, Fort Atkinson, Wis.

Along with the blueprint, you will receive a complete bill of materials.

From the bill of materials, your lumber dealer can figure approximate cost before work is begun.

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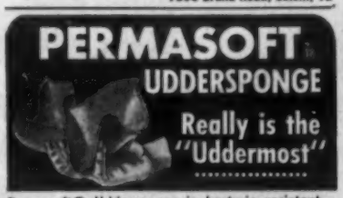

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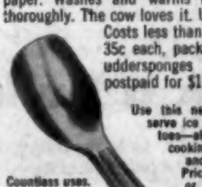

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FORT ATKINSON, WISCONSIN

What can pastures do for you?

(Continued from page 621)

field produced more silage than the bluegrass field.

1944		1950	
Previous sod	Tons silage	Previous sod	Tons silage
Bluegrass	18.3	Bluegrass	15.0
Bluegrass	16.3	Brome-alfalfa	16.6

Four years of brome-alfalfa sod was as good as 9 years of bluegrass sod. With another 4 years of bluegrass sod, the yield of silage went down 3 tons per acre on the field which was best to begin with.

Organic matter furnishes nitrogen and makes the soil looser so it can take in more water. With corn, you can make the best use of this free organic matter. It is good fertilizer. It can reduce the rate of side-dressing corn with nitrogen, if other fertilizer is added.

You can make good use of organic matter by alternating your corn crop between the flatter corn land and the hillier grasslands. Include corn in a long rotation on grassland slopes up to 15 per cent. Use contour strip cropping. Then grow brome-alfalfa on the bottom land normally used only for corn. This will use the organic matter to best advantage on the grasslands and it will add valuable organic matter to the corn land.

Corn will produce more dry matter than other crops but it is lower in protein than brome-alfalfa. Here are some comparisons of (a) corn and four years brome-alfalfa, and (b) five years of brome-alfalfa.

Forage used in the rotation	Tons dry matter from: (a) 4 yrs. forage and 1 yr. corn	(b) 5 years forage	Tons T.D.N. from: (a) 4 yrs. forage and 1 yr. corn	(b) 5 years forage
Clovers-grasses	13.86	11.51	5.82	3.46
Brome-alfalfa	16.53	14.87	6.63	4.45

These are total tonnages produced in five years. Here you see that having corn instead of forage on the grassland in one of the five years, produced about two tons more dry matter per acre and over two tons more T.D.N. per acre. This is making good use of the organic matter from the sod on the grasslands. Notice that brome-alfalfa in the rotation produced about three tons more dry matter than the clovers-grasses mixture.

Thus, alternating the corn-brome-alfalfa rotation between hillsides up to 15 per cent and bottom land offers a tremendous possibility of increasing the total production on all fields of the entire farm. Also, don't neglect the steeper slopes up to 25 per cent. They can be productive when renovated.

If all these things are done, woodlots need not be grazed. They yield only 300 pounds of poor-quality dry matter anyway. The steeper slopes (25 per cent and more) can be planted to trees. The bluegrass on them yields less than 1,500 pounds of dry matter per acre. By renovating 1 acre on the 15 to 25 per cent slopes, you can set aside at least 10 acres of woods or plant trees on 3 acres of steeper hillsides. Or, if you renovate 5 acres on these lower slopes, you can plant 15 acres of trees on the steeper slopes.

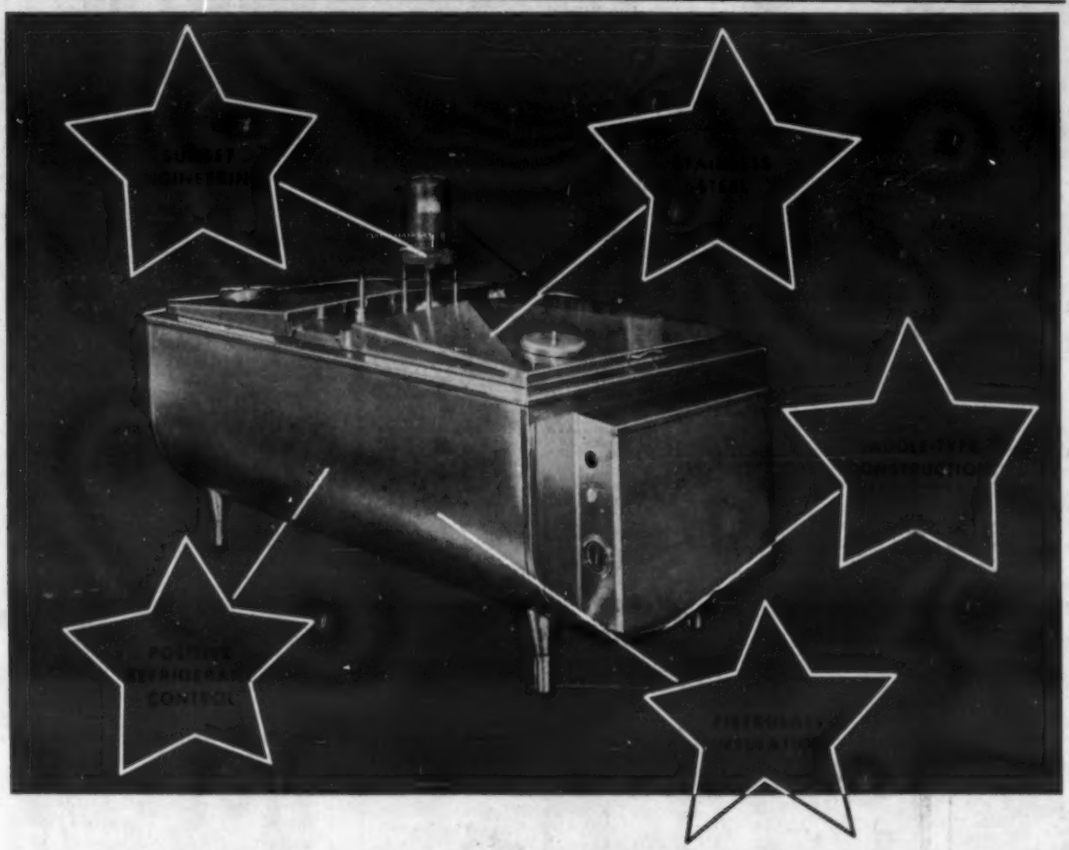
For more income . . .

Do these five things:

1. Use high-producing forages like brome-alfalfa-Ladino clover.
2. Renovate and reseed slopes of 15 to 25 per cent with Vernal alfalfa and brome grass.
3. On slopes up to 15 per cent, use a rotation of corn-oats-four years of pasture, or hay, in a contour strip cropping system.
4. Put brome-alfalfa in the rotation with corn on the bottom land for big yields of forage and to add organic matter for bigger and cheaper corn production.
5. Keep cattle out of the woods. They will starve there anyway and they ruin the woods.

You will get a larger total production from your entire farm, if you follow these practices. Your net income will be bigger. You will live better and your children will be even better off for you will leave them a better farm.

Take a second look at the possibility of higher and cheaper production of good forages on all your land. Maybe you won't need to increase the herd. **THE END**



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In 10 years the 3,500-acre colony, blending state and private enterprise, has earned a reputation as representing one of the most successful attempts at large-scale cattle colonization in Asia. Its 30 dairy units house 22,000 cattle in a park-like setting with tree-lined roads and picnic grounds, forming a popular tourist attraction.

"We are trying to provide a regular supply of pure milk at a price within reach of all classes," said English-trained R. S. Titus, one of many farm supervisors, who also studied dairying in New Zealand, Denmark, and Holland.

—THE GLOBE AND MAIL, Toronto

The cervix . . . gateway to the uterus

This small, spool-shaped organ is not only the gateway but the guardian to the uterus or womb. Here is how nature protects the growing fetus.

by E. A. Woelffer, D.V.M.

PREVIOUSLY, we described some abnormal anatomical and functional disorders of the vulva and vagina of the cow and their relationship to infertility. Here we discuss the cervix, which is that part of the reproductive system that separates the uterus from the vagina.

Not counting two tiny openings into the Fallopian tubes at the anterior (front) end of the uterine horns, the cervical canal is the only opening into the uterus. You will recall, the fetus grows and develops in the uterus.

What it does . . .

The cervix has several important functions. It seals off the uterus while it is carrying the fetus. It expands and permits the fetus to pass out through the birth canal at calving. It prevents infection from entering the uterus. At this latter function it does a credible job, but by no means a perfect one.

Normal cervix varies . . .

When the cow is not in the process of calving the cervix is contracted or practically closed. At this time, it is shaped somewhat like a spool. An average normal cervix is about 2½ inches long and 1 inch in diameter. It is larger in cows that have had a number of calves than in virgin heifers.

In a pregnant cow, the small canal through the cervix becomes filled with a thick sticky, jelly-like secretion which seals the opening. When in heat, the secretion is thin and fluid.

Secretions from the uterus readily pass out through the canal during the period of estrum. [This outward flow is a natural barrier to the entry of disease organisms. But motile sperm can gain entry. —Eds.] Shortly before calving the seal dissolves and the canal becomes greatly enlarged in diameter to permit passage of the fetus.

Often injured . . .

If calving goes along the way nature intended, there is little we need be concerned about. Occasionally there is interference with normal activity, and management often is responsible. The cervix is a tough piece of mechanism. It is designed to take considerable abuse but it can be and often is injured, mostly at calving time. If we do a poor job of raising a heifer and breed her when she is undersized, her calf may be larger than the cervix is prepared to handle. The result is injury to the cervix and possibly to other parts of the reproductive system.

Rarely is the cervix injured through natural breeding. The same is true when artificial insemination is performed by a careful and well-trained inseminator.

Tears and bruises to the mucous membranes of the cervix sometimes lead to scar tissue formation and inflammation (cervicitis). A cow with a large, hard cervix has either an acute or chronic cervicitis, or a combination of the two. When the condition is acute, the vaginal end of the cervix will be somewhat enlarged and quite red in color. Membranes of a normal cervix appear a "healthy pink."

Breeding difficulties . . .

As pointed out, the normal cervix does a remarkably effective job of keeping infection from passing through the canal into the uterus. Its efficiency, however, is reduced when inflammation or scar tissue is present. Occasionally the vaginal end of the cervix is diseased while the anterior end often remains relatively healthy.

A diseased cervix often interferes with conception. It is not uncommon, however, for a cow with an infected cervix to conceive and carry the fetus to term. This is because passage of the male sperm is not interfered with and the healthy part of the cervix is able to function normally. At other times, infection spreads forward, destroys the seal, and abortion follows.

After normal calving and prompt release of healthy membranes, the uterus and cervix contract rapidly and assume their nongravid state. Both cervix and uterus usually require five to nine weeks to get back to normal "open-cow" state.

If the fetal membranes (afterbirth) do not readily come away and are not carefully handled, there is always a chance infection will be carried into the uterus. If mucous membranes become broken or bruised, the cervix becomes readily infected.

Born abnormal . . .

Occasionally a female will be born with an abnormal cervix. Congenital (at birth) abnormalities of the cervix show up in several ways. The most common is a cervix with a double opening. If the two vaginal openings are traced forward, it will be found they enter into a common opening to the body of the uterus, much like the shape of a "Y". In such cases, sperm can enter and travel through either canal.

Occasionally one of the openings terminates into a so-called blind pouch or pocket. Less frequently, there is a double cervix. Each cervix leads directly into a separate uterine horn. Only a week ago, in our practice, we encountered a cervix and uterus of this type. If ovulation is not established, both cervices should be inseminated. With ovulation occurring in the left ovary the possibility of conception, if inseminated in the right cervix, would be practically nil.

Occasionally a cervix is found to be abnormally long and narrow. At times a distinct "kink" is observed along the cervical canal. The canal sometimes is extremely small so it is difficult or impossible to pass the inseminating tube, especially if the so-called kink is present. These types of cervices are seen more often in heifers. As a rule, they are more difficult to get with calf.

Rarely is an individual born where the cervical canal is absent or completely closed.

We have encountered only a few abnormal cervices in our practice. One virgin heifer would not conceive and her cervical canal could be penetrated only a short distance with a metal catheter. A post-mortem examination revealed a fibrous band midway in the cervical canal. The band completely obliterated the passageway between the vagina and uterus.

Care at calving time . . .

Usually little can be done for the congenitally abnormal cervix. If there is likely to be interference with fertility, call your veterinarian for a diagnosis and prognosis. Inflammation or infection of the cervix (cervicitis) should be treated before the cow is bred. Excessive scar tissue sometimes interferes with proper functioning.

If the posterior rings are large and infected, it is sometimes advisable to have them removed surgically. Most important of all, try to avoid injury to the cervix. It is more easily injured when delivery is attempted before the cervix is completely relaxed. Heifers not properly developed are more susceptible to injury.

It is important to provide clean, well-bedded quarters for the springing cow or heifer. Watch her carefully. Don't try to rush things. On the other hand, be alert for abnormal calving signs.

Care, comfort, and cleanliness at calving time are the cardinal conditions to consider if injury and cervicitis are to be avoided and breeding difficulties prevented.

If a cow fails to conceive or shows a small amount of cloudy discharge or pus at the vulva, consult your veterinarian. The cervix may be partly involved or it may be the sole source of trouble. With proper treatment, many cows with cervicitis can be restored to normal breeding condition.

75 years ago...

Just now a lot of would-be scientific sharps are busy telling us all about the cause of the late drouth. They say that years ago there were lots of marshes and undrained lands here in the West and all the sun had to do to get up a rain was to draw on these resources and the thing was done.

All that sounds very well if it were not for the inconvenient fact that years ago we had drouths just the same, that the clouds that precipitate rain may have come a thousand miles before they are condensed and fall.

The first thing we know we shall have a rainy season and the same sharps will be whetting their bills over the proposition that it is caused by a lack of drainage.

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ARTIFICIAL BREEDING

Here is the impact . . .

. . . of A.I. since 1939. About a third of our cows are serviced artificially. The cost per cow remains the same . . . production per cow is increasing.

by H. A. Herman

EACH year, since the beginning of artificial breeding in this country, the number of cows inseminated and herds enrolled have increased. The table below indicates the steady growth these past 20 years:

	1939	1949	1958-59
Cows	7,359	2,091,175	6,645,568
Herds	646	316,177	975,372
Sires	33	1,940	2,676
Cows per sire	228	1,078	2,483

The year-after-year increase since 1945 occurred in spite of a reduced milk cow population. It is estimated there were 27 million milk cows in 1947, but only 19.7 million in 1959. For 1959-60 about 32 per cent of our milk cow population is enrolled in A.I.

Use of beef sires in bull studs has steadily increased since 1945 with 12 per cent of all inseminations to beef bulls in 1958.

Cost the same . . .

One remarkable fact is the service charge of $5 to $8 in 1960, **the same as in 1939.**

Service cost is kept to a minimum by increasing efficiency of the breeding organizations. Number of cows per sire, as shown in the table has increased steadily and, with frozen semen available, may become much greater.

Some 15 years ago few technicians were inseminating over 2,000 cows per year. In Wisconsin, Florida, and California, where herds are large and technician driving-distance is low, many inseminators are now exceeding 3,000 cows per year. A few average over 5,000 cows. At least one Wisconsin technician, Don Beck, has exceeded 6,000 cows.

Semen, by virtue of research findings and improved evaluation methods, is commonly extended (diluted) 3 to 20 times as much as in 1939.

It is problematical how much further we can go without increasing breeding fees. Operation costs are steadily rising. There is a definite limit to the number of cows a technician can inseminate and this will perhaps have a greater bearing than rate of sire use.

Each year higher-transmitting sires are needed. The price of top-quality sires also has risen steadily. The fact is the best bull any organization can find is in use. Little expense on sires is spared. Money, however, doesn't make a bull. It is what his daughters put in the pail that counts.

During 1959, about 39 per cent of all sires used artificially were proved. They had an average of 13 daughters that averaged 11,493 pounds of milk, 482 pounds of fat on DHIA testing. The dams averaged 10,918 pounds milk, 451 pounds of fat. According to reports in our office, about 75 per cent of all inseminations are to proved sires. These records are given on 305-day, 2x, m.e. basis.

Young sires with excellent ancestry are used. These young sires, however, are sparsely used until proved in many herds. If above-average, they are put into full-scale use.

A proof on proved bulls in a single herd is heavily influenced by the environment. If we are to continually improve, we must distinguish between inheritance and environment in evaluating sires.

At present, we do well if we get records of production on 1 out of 10 cows in milk. This dearth of production information retards and slows up progress.

The last summary we had on A.I. daughters and naturally sired daughters was in October 1955. That report, from U.S.D.A., showed in 1953 that 78,971 A.I. daughters in DHIA averaged 10,625 pounds of milk, 417 pounds of fat. Average for DHIA cows on a non-A.I. basis was 10,299 pounds of milk, 409 pounds of butterfat, a difference of about 326 pounds of milk and 8 pounds of fat. At present market prices, this difference will pay for A.I. service.

For the 10-year period, 1939 to 1948, national average milk production per cow was 5,010 pounds. Due to culling and favorable beef prices the national herd was reduced from 27 million in 1947 to less than 20 million milk cows. However, the 1948 to 1959 national average per cow was 6,330 pounds of milk, a gain of 132 pounds a year. This we believe is due to both better management and better breeding.

Better breeding through A.I. is only part of a good dairy production program. Through the use of outstanding sires, A.I. can lay the basis of "production potentials." It takes good feeding and management for cattle of improved breeding to produce according to their inherited ability.

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Prevent spontaneous combustion . . .

. . . by storing loose hay at 20 per cent moisture, chopped hay at 15 per cent. With a mow drier, hay can be put up at 35 to 40 per cent.

by J. H. Ramser

ORDINARY hay in the presence of air will ignite at a temperature of 400 to 500 degrees. If conditions are favorable, this rise may occur in a few days. Another form of spontaneous combustion may occur over a long period and when temperature has not been very high.

Probably the most reasonable explanation is that when hay remains away from air at a temperature of 130 degrees or above, its carbon assumes a very finely-divided form which readily combines with oxygen of the air at ordinary air temperatures. When the carbon is in this state, it will burst into flames immediately upon coming in contact with air even at ordinary air temperature. Such burning may occur weeks or months after the hay is stored and after a temperature no higher than 130 degrees has been observed.

The chief cause of spontaneous heating in hay is the presence of excessive moisture. The most common cause of this high moisture is incomplete curing before storage. Don't be in too great a hurry to store hay. Satisfy yourself the moisture content is right before doing so. After the hay is stored, make sure the roof does not leak so as to increase the moisture content. A leaky roof can prove disastrous in some instances.

Store hay at the proper moisture content. Long loose hay should be cured to 20 per cent moisture content or below. Chopped hay is more dense and should be dried to 15 per cent moisture content. Hay with these moisture contents is not tough.

The best way to check on the condition of hay in storage is to take its temperature. A simple device or probe for obtaining hay temperatures may be made of ¾-inch pipe. For convenience, the probe can be made in sections 3 to 5 feet in length and joined with couplings. The bottom section should be sharpened so that it can be forced easily into the hay. A slot in side of this section will allow thermometer to come to hay temperature more quickly.

For convenient operation, the top section may be formed with a pipe tee and two short pieces for a handle. A hole drilled through the tee will allow a glass thermometer to be lowered into the pipe by means of a string. The thermometer should remain in the pipe long enough to obtain the hay temperature and then be withdrawn for reading.

A commercial probe similar to the one described may be purchased from supply houses.

If heating hay has been stored for several weeks, don't walk directly on the surface as it is possible that cavities may have formed beneath. Put planks on the surface on which to walk.

Any temperature in stored hay much above that of the outside air should be watched carefully since a rapid rise might take place. If the temperature continues to rise above 150 degrees, it may be dangerous because the heating is then due to chemical action. If temperature rises above 175 degrees, it can be extremely dangerous and removal of the hay should be considered.

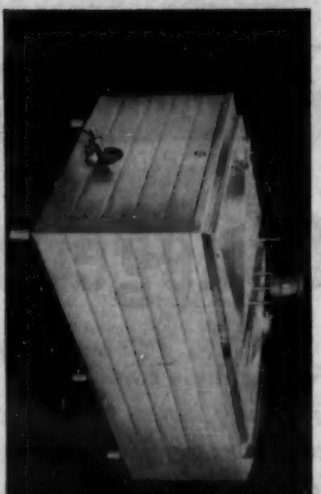
Removing hay . . .

Heating hay stored only a few days should not present difficulties when removed at a temperature of 200 degrees. If stored more than a week or if the temperature is higher, use extra precautions. If possible, a fire department should stand by to soak the hay with water, if any indication of burning is noticed.

Thorough wetting is the simplest and also a very good method of quenching hay fires. Carbon dioxide, either introduced into the hay by a pipe or sprayed on the surface, is very effective in smothering hay fires.

Hay stored for some time may have some of the finely-divided carbon present and even though it has been well wetted, will burst into flames after it dries. Such hay must be placed a safe distance from the building when removed.

The author is an agricultural engineer at the University of Illinois.



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YOUNG DAIRYMEN

College boys do return to farms

Four of these seven graduates operate dairy farms; two work for farm service companies; one is working for his master's in dairy husbandry.

by H. L. Dalton and H. B. Henderson

DAIRY HUSBANDRY CLASS being shown the technique of throwing a bull for hoof trimming, insertion of nose ring, and so forth. Actual experience is one of the better methods of teaching and will prove invaluable to these young men upon their return to the dairy farm.

IT IS a common belief that farm boys go to college to prepare themselves for a non-farm vocation. In many cases this is true. And, likewise, in many cases the decision to leave the farm may be justified easily.

Farm families generally are supposed to be larger than non-farm families. In most instances, it would be impractical and inadvisable for more than one or two of the boys out of a single family to return to their parent's farm.

However, farm boys do go to college with the objective of returning to the farm upon completion of their college work. This is borne out by an experience at the University of Georgia during the 1956-57 school year.

Nine students enrolled in a dairy farm management course. Of these, eight were majoring in dairy production. The other was majoring in general agriculture, but had a keen interest in dairy farming. The significant fact about these students was that all of them planned to return to the farm as soon as they finished school.

Readers should not get the idea that these were just ordinary students who would find it difficult to get a job. Five were scholarship winners with a B+ average. Certainly, these young men could have found attractive vocations away from the farm had they so desired. Six of the nine students graduated in the spring of 1957.

The authors have had an opportunity to visit the farms of some of these young men to determine why they reached the decision to go back to the farm. It would appear that the students who are in partnerships have had their setups handed to them. However, all of these boys have worked on these farms, and with these herds all their lives. So, actually, they are continuing with the herds they have helped build.

In other cases, much hard work, planning, and additional financing is going to be required. With such prospects ahead, one has to admire them for their determination to accept the challenge of building a good dairy herd despite obstacles they know lie ahead.

A brief introduction of the students follows:

Donald Tucker, Loganville, Ga., graduated after paying most of his way through school by working at night and in his spare time on weekends. Donald was a much better student than his scholastic average would indicate because of his long working hours. Don went back to the farm but there just was not enough there to support three families. He is presently employed by a farm service company waiting for the day when he can rent a farm on a share basis.

John Jenkins, Fairburn, Ga., likewise, had to pay his way by working at any job that offered a means of earning a few extra dollars. As a result, it was not until his senior year that he advanced his academic average sufficiently to win a $200 scholarship. John is employed by a farm service company, but still retains the management of his farm. He felt that the supplemental income was necessary for the first few years.

James Lee was raised on a dairy farm at College Park, Ga. Jim transferred to the University after one year at a junior college near his home. Upon completion of his military obligations, he returned to the University to do graduate work in dairy production and is there at the present time.

Loy D. Cowart, the only "South Georgia" boy in the group lives at Twin City. He transferred to the University from Abraham Baldwin College, a junior college. He obtained a double major with agronomy as well as dairy husbandry.

Charles Wallace, Saundersville, Ga., graduated with one of the highest scholastic records in the college of agriculture. Charles is operating his own farm and herd.

James Leckie, Shadydale, Ga., was raised with a dairy background since his father was formerly extension dairyman in Virginia and for the past several years has been operating the present farm. A separate unit has been established for which James is responsible.

Sam Few, Jr., Apalachee, Ga., likewise, was raised on a dairy farm. His father was one of the founders of a large dairy cooperative in Atlanta and has served as treasurer of it since its beginning. Sam is due out of the air force very soon and will return to the farm.

The authors selected a few pertinent questions which they felt would give a clear picture of the circumstances which led to the decision to return to the farm. These questions and answers follow:

Why did you decide to be a dairyman?

Tucker: I always liked farm life and when I was in the service, I missed it.

Jenkins: To me, it appears to be the most stable form of agriculture.

Lee: I was raised with dairy cows. My father had been in beef cattle business and switched, so I thought it ought to be good.

Cowart: I like dairy cows. I grew up with dairy cows, helping my father. I think the turnover in profit is greater than in beef.

Wallace: Because I didn't see any future without livestock, and dairying seemed to be more stable.

Leckie: I just like it. I like cows and like to work for myself.

Few: I've been doing it all my life and

DONALD TUCKER with his wife and son. Although employed by a farm service company, his plans for future are to rent farm on share basis.

The authors are general farm manager, Davis Meadow Brook Dairy Farm, Inc., Florida, and professor and head of dairy department, University of Georgia, respectively.

know how to do it and like it.

Why did you decide to go to college?

Tucker: I'd worked in a milk plant for awhile and didn't like it. I figured I'd have to get more education to get ahead. When I got out of the service after the Korean conflict, I started college.

Jenkins: I didn't know anything about dairying.

Lee: I was sure I would be able to do a better job and take more responsible leadership in the industry.

Cowart: To learn more about dairying. My dad encouraged me.

Wallace: I started and quit and went into the Air Force for four years. During that time, I saw you had to have an education to keep ahead.

Leckie: I felt I needed the technical training and I just wanted to go to college.

Few: To learn the approved practices and techniques of dairying.

What is your farm size and crop program?

Tucker: Total acres, 375. Temporary pasture, 225 acres; no permanent pasture for herd. Silage is made from summer grazing crops. Hay is bought.

Jenkins: Own 280 and rent 250 acres. Use temporary pasture 100 per cent for milk cows, permanent pasture for heifers. We put up corn silage and will put up grass silage from winter grazing surplus. Some Sudan and millet hay is put up, but we buy hay.

Lee: Total acres, 500; 250 acres of improved land all in temporary pasture; no permanent pasture for milking herd. Silage is made from winter and summer surplus; hay is bought.

Cowart: Total of 550 acres; 40 acres temporary pasture and 40 acres improved permanent pasture; 200 acres of timber; 270 acres in crops, including peanuts, corn, tobacco, cotton, soybeans, and oats. No silage. We feed oat, soybean, and peanut hay.

Wallace: Total acres, 244; temporary pasture, 60 acres; improved permanent pasture, 83 acres. We put up 100 tons of surplus winter grazing this year for the first time. We raise brown top millet for hay.

Leckie: Total acres, 1,590; have 500 acres of open land; 45 acres of improved permanent pasture and 153 acres for temporary permanent pasture; 64 acres in alfalfa. We use 20 acres for corn silage plus surplus of winter and summer grazing for silage.

Few: Total acres, 860; 600 acres open land; 250 acres in improved permanent pasture and 130 acres in temporary pasture; 30 acres of alfalfa and 40 acres of lespedeza hay. No silage raised or fed.

What is your herd size, breeding and testing program?

Tucker: On the home farm, we have 31 mature cows and 44 young stock; use artificial insemination on cows and a few heifers. We breed a few cows and heifers to a bull. Our herd is on DHIA.

Jenkins: Mature cows, 44; unbred heifers, 12. We use artificial breeding on cows and breed heifers to a bull. Have mixed breed herd. Will do my own testing, using weigh-a-day plan.

Lee: On the home farm . . . mature cows, 125; heifers, 75. Breed cows and heifers to a bull. Have been on DHIA. The herd consists primarily of Holsteins, with some Jerseys and Guernseys.

Cowart: Mature cows, 46; and 15 heifers. We use a bull as there is not an artificial insemination program available. No testing program in our area; we use weigh-a-day method for our own information.

Wallace: Mature cows, 35; 15 heifers. Use artificial insemination on mature cows and breed heifers to a bull. Have Brown Swiss, Guernseys, Jerseys, and Holsteins. No testing program available, but use weigh-a-day plan for our own information.

Leckie: 93 mature cows, 70 other dairy stock. Use bull on heifers and "sorry" cows; artificial insemination on other cows. Have registered Holsteins and mixed breeds of Guernseys, Jerseys, and Holsteins. Have been on DHIA for six years.

Few: Have 110 mature cows and 25 young stock. Use artificial insemination on all animals. Have about 85 per cent Jerseys and 15 per cent Holsteins. Am going to start using milk meters and do my own testing. Not testing now.

What is the financial basis of your operation?

Tucker: I have no money in the operation. It is a three-way partnership with my brother and father. I will pay one-third of all expenses and investment in the future. Management is my investment now. We plan to increase to 75 milking cows.

Jenkins: I inherited 280 acres of unimproved, wornout land. My capital has come from small business administration, production credit, and some private money. I own all my equipment and built my milking parlor myself.

Lee: Management is my investment now. In the future everything will be on a 50-50 basis. (Lee is back in school preparing for off-farm employment until such time as his father retires.)

Cowart: A complete agreement has not been reached, but I probably will be on a 50-50 basis when I finish school. The farm needs to be rearranged for better operation.

Wallace: We will be on a 50-50 basis from here on. I was financed by FHA and private sources to buy part interest.

Leckie: I started in the dairy business in FFA work and have had the increase from those animals. I have financial interest in some machinery now, but details of the partnership will be worked out after I return from service.

Few: I've always worked and helped run the dairy just like I would if it were mine, and have tried to build it up. When we bought anything, Dad and I talked it over just like I was paying as much as he was. My investment is actually management. When I get back from service, we will have a 50-50 deal.

What is your market, average price, and so forth?

Tucker: Southern Dairies at Atlanta. We started when they first began picking up in this area. We got approximately $6 per hundred last year. Due to a good breeding program, we had no surplus.

Jenkins: Southern Dairies in Atlanta. I sell to them because I worked in their plant one summer and liked the operation. I averaged $5 per hundredweight because I produced about three times as much as my base.

Lee: Atlanta Dairy Cooperative. We sell to them because my father is "co-op minded" and felt we could get a better price. We got $6.32 per hundredweight for all our milk. There is no surplus price.

Cowart: Starland Dairies in Savannah. We were retailing and they bought our route, so we sold our milk to them. We averaged $6 per hundredweight, with about 15 per cent surplus.

Wallace: We retail in gallon containers and sell to Foremost, started September 1. We retail because our neighbors requested it. We have never solicited business. We sell to Foremost because we bought some cows and a base went with them. We get $8.66.

Leckie: R. L. Mathis in Atlanta. We had a lot of rejected milk at our previous market. We averaged over $6 per hundred last year and have been right on our base.

Few: Miss Georgia in Atlanta. My father helped found the organization and he sold milk at 9 cents per pound butterfat in order to help the plant get going. He is treasurer of the organization. We got $6.75 per hundredweight last year and had 160 pounds of surplus.

All of the students were in accord on partnerships. If they couldn't go in with their own fathers or brothers, they wouldn't go into a partnership. Also, if they were going to try it on their own, they would want enough capital to run them two years without any strings attached. **THE END**

JOHN JENKINS, on the right, showing a neighbor his new milking parlor. John constructed the building himself, plus installing the equipment in the parlor.

CHARLES WALLACE, foreground, and his father with their herd. Charles graduated in 1957 with one of the highest scholastic records in college of agriculture.

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10-6083

FEEDING

by J. K. Loosli

Cut your hay crop early

Checking the calendar is one of the best ways of predicting what quality of forage will be. When buying hay, don't rely entirely on color.

THE most important thing a dairyman can do to increase milk production and profits is to provide high-quality forage. Not only will cows eat much more of good forage, but they can **digest more** nutrients from each pound.

Cows will eat more than 30 pounds of excellent hay per 100 pounds of body weight per day compared with 1 pound or less of poor hay. Differences in composition and digestibility are about as big as variations in intake.

The tremendous changes that take place as hay crops mature are clearly illustrated in a recent report by Dr. Melvin Anderson of Maine. Timothy hay from properly-fertilized land was cut at four different dates. The composition and digestibility of the hay is shown in the following table:

Date cut	Composition		Digestible	
	protein	energy	protein	energy
	%	kcal/gm	%	kcal/gm
May 27	28.8	4.67	24.5	3.70
June 17	16.6	4.60	12.2	3.16
July 9	10.5	4.64	7.0	2.78
Aug. 5	8.4	4.70	4.4	2.39

There was a marked drop in protein content of the hay as it became more mature. Digestible protein and energy also decreased.

The protein of the timothy cut on May 27 was 85 per cent digestible and the energy 79 per cent. This is as high as the digestibility of better quality concentrate feeds.

The timothy cut on June 17 was very early cut hay, as seen from its high protein content. The energy of this hay was 70 per cent digestible and the protein 74 per cent compared with 51 per cent and 52 per cent for the same nutrients in the first crop timothy hay cut on August 5.

This decrease in the digestibility of forage as it grows and matures is much more rapid than one would expect from the appearance of the forage.

From Anderson's report, figure 1 shows this decrease in digestibility of dry matter as related to date of cutting and is compared with the data of Dr. J. T. Reid of Cornell University.

Anderson found the stage of development of first cutting timothy to be almost three weeks later at Orono, Maine than for the same forage at Ithaca, N.Y. as studied by Reid. Except for the later season, decrease in forage value was the same at both stations.

What other studies show . . .

Reid has found that if he knows date of cutting of first crop hay in New York he can accurately predict its nutritive value. The values of timothy, clover, alfalfa, and mixed hays were strikingly similar at any date of cutting.

The lines in the figure, therefore, can be applied to any common forage, and it seems that they may be true for most of the northern United States.

In the East and South, rainy weather often delays hay making. The use of barn hay dryers to prevent rain damage is becoming more common each year. Making silage is another way of preventing weather damage to early-cut forage.

Early cutting is the key to having top quality forage whether it is fed as hay or silage.

Checking off the date on the calendar as an index of forage quality seems almost too easy to be useful. Yet observations over several years show that forages reach the haying stage of maturity at about the same date.

The wide variations in the date of the last killing frost in the spring are largely overcome as the growing season progresses.

What about aftermath?

Opinions of livestock men differ regarding the comparison of second-cutting alfalfa and other aftermath hay. Reid's studies showed less variation in the value of aftermath cut at different stages of maturity than for the first cutting.

Aftermath was never as highly digestible at early stages of maturity as first cutting, and its digestibility did not fall as low as it became mature. Proper cutting date still is an important question.

Recent studies at California have shown that greatest yields of total digestible nutrients were obtained when alfalfa was cut at five-week intervals or at one-tenth bloom for all cuttings after the first crop.

Plant vigor and stand was as good at the five-week cutting interval as when cuttings were less frequent and it was better than with more frequent cuttings.

Greatest protein yields were obtained when the alfalfa was cut at four-week intervals or at the bud stage of maturity.

These tests show early cutting of legume aftermath also pays off and they help to pinpoint more accurately the best cutting interval.

Many dairymen do not know that cows will eat more and produce better on early-cut hay even if it is rained on and somewhat discolored than they will bright green hay cut two to three weeks later. Don't buy hay on color alone.

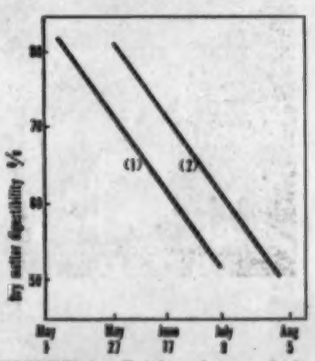

FIGURE 1. Cutting date and digestibility of timothy at (1) Ithaca, N. Y. and (2) at Orono, Me.

HANDY HINTS

MEASURING GAUGE

Since we used a 250-gallon oil drum for our spray tank, we already had a built-in measuring gauge. It is a simple matter to check the amount of spray left merely by a glance at the gauge. These measuring gauges can be installed in almost any spray tank.

Maryland — WILMER HOUSE

COOLING SYSTEM

We discovered a way to keep our hogs cool even with the temperatures soaring into the high 80's and 90's. An old garden hose with a T added at one end was fastened between the two hog pens. Through this hose a fine mist of cold water entered both pens at the same time. Keeping our hogs cool in hot weather allows maximum growth and earlier marketing.

Ohio — MAX STERLING

SAFETY FIRST

A long, light pole, a one-inch plank, and a length of rope several feet long are good safety items to have near a farm pond or lake frequented by swimmers. Distressed swimmers can get help from the bank of the pond by a person holding out the pole, throwing out the rope, or shoving out the plank. In the picture above, Gail Bank, Missouri, makes his favorite lake a safer place in which to swim.

Missouri — RICHARD L. LEE

PUMPS OFF SEEPAGE

Floyd B. Lampkins, Maryland, has solved the problem of silage seepage from his silos. When he constructed his two new silos, he installed a 45-gallon drum between the two. An electric sump pump that he can raise and lower at will is used to dispose of the liquid.

California — M. H. MCVICKAR

PATCH LEAKY PAIL

A leaky pail need not be thrown away. Make sure the leaky area is absolutely clean; stick two pieces of adhesive tape on crosswise; apply two coats of enamel.

Michigan — MRS. ERNEST MILLER

DUMP CART OF MANY USES

This dump cart was made from the rear carriage of a Ford car that was rusting away in a scrap heap. It was made principally to haul loose stones from the fields with the idea that it could be backed to the edge of a gulley or cliff and the stones dumped.

However, it can be used for anything that has to be unloaded fast and is useful for many other jobs around the farm, especially fencing. A large load of posts can be hauled and the posts are not nearly as hard to drive when you can stand this high to drive them.

Maryland — J. MARSHALL PORTER

SPRAYS DISINFECTANT

For a quick and easier way to disinfect cuts or sores on any of our farm animals, we keep liquid disinfectant in an atomizer bottle. A quick spray or two does a thorough job and is hardly noticed by the animal.

Minnesota — MRS. LEO KEITZECK

Model 54A-VG4D

For all crops! GORMAN-RUPP IRRIGATION PUMPS

When it comes to sprinkler irrigation systems, farmers depend on Gorman-Rupp Irrigation Pumps to get the best soil moisture content for finest yields. These are the pumps which are backed by the combined experience of more satisfied users than for any other make.

Gorman-Rupp has introduced more design features, year after year—every one a result of practical field experience. Pumps are designed to match engine power for top performance—and at low operating costs.

Ask your Gorman-Rupp Irrigation Distributor about the complete package units: pump, engine, exhaust priming device, strainer—ready to go to work for you. Also pumps for belt drive and for tractor P.T.O. Or write direct.

THE GORMAN-RUPP COMPANY

305 Bowman Street — Mansfield, Ohio

Gorman-Rupp of Canada, Ltd., St. Thomas, Ontario

KEEP DAILY MILK RECORDS

You can't build up a dairy herd on guesses. You need records—ACCURATE RECORDS. Thousands of good dairy farmers say ours are the most convenient milk record sheets they can find anywhere. Here is the price list. Orders are shipped promptly.

Weekly Records—Two Milkings	Price of a Year's Supply	Monthly Records—Two Milkings	Price of a Year's Supply
10 cows, one week	$3.00	1 cow, one month	$1.00
20 cows, one week	3.50	10 cows, one month	1.50
30 cows, one week	4.00	25 cows, one month	2.00
		35 cows, one month	2.50

For Three Milkings a Day	Price of a Year's Supply
15 Cows, one month	$2.00

HOARD'S DAIRYMAN — Fort Atkinson, Wis.

Now mow and condition in one operation with the

NEW LUEDTKE multi-drive

- Hay mowed on first round conditioned on second round
- Mounts on your present equipment*
- Transmits power to both mower and conditioner
- Can be installed in less than 2 hours
- No drilling, cutting or welding necessary
- Does not hamper operation of mower or conditioner
- Turns in 18' circle

PRICES FROM **$188.90**

*Fits all New Idea trail-type mowers; McCormick-Deering model No. 32 trail-type; New Holland, model No. 46 trail-type.

LUEDTKE MANUFACTURING CO., Inc. ALLENTON, WIS.

SPECIAL OPPORTUNITIES

— Where Buyer and Seller Meet —

The rate for advertising in this department is 35 cents per word per insertion, except for "help wanted" and "position wanted" advertising which is only 20 cents per word per insertion. Count address. "J. W. Foley, Route 13, Green Bay, Minnesota," is considered as eight words. Blind advertisements must be signed: "BOX ☆, care Hoard's Dairyman, Fort Atkinson, Wisconsin" and count as 5 additional words. Count each initial or group of figures as a word. SEND CASH OR CHECK WITH ORDER. Copy must reach us one month ahead of date of issue. NEW ADVERTISER MUST FURNISH REFERENCES. Send order to HOARD'S DAIRYMAN, Fort Atkinson, Wisconsin. Different rate for Livestock Display advertising.

STOCKMEN'S SUPPLIES

HORN WEIGHTS. Made in 4 sizes ½ lb., 1 lb., 1½ lb., and 2 lbs. Tattoo markers $5.75 postpaid, includes set of numbers, bottle of ink, and full directions. We also carry complete line of ear tags, neck chains, veterinary instruments, supplies, serums, remedies; in fact, everything for the stockman. Write for free catalog. BREEDERS SUPPLY Co., Council Bluffs, Iowa.

ARTIFICIAL breeding equipment. Largest, most complete line. Write for free catalog. NASCO, Fort Atkinson, Wisconsin. 1-*

VET MEDICINES for dairy and livestock. Antibiotics, vaccines, sulfa drugs, equipment. Complete line at wholesale. Write for catalogue. EASTERN STATES SERUM COMPANY, 1727 Harden Street, Columbia, South Carolina. 23-*

VETERINARY SUPPLIES, mastitis ointments, penicillin, at greatly reduced prices. Free catalog. WESTERN LIVESTOCK SUPPLY, Delta, Colorado. 24-*

KILL SUBMERSED water weeds which foul up motor propellers, tangle fishing gear, with R-H Weed Rhap-20, Granular 2,4-D. Inexpensive, easy to use, sure results. For free information write REASOR-HILL CORPORATION, Box 36HD, Jacksonville, Arkansas. 1-12

KILL BITTERWEEDS, wild onions and dog fennel with R-H Weed Rhap. Low cost. Will not injure grass, grains; not poisonous. For free information write REASOR-HILL CORPORATION, Box 36HD, Jacksonville, Arkansas. 7-6

KILL BRUSH at low cost with amazing R-H Brush Rhap. Will not injure grasses, grains; not poisonous. For free information write REASOR-HILL CORPORATION, Box 36HD, Jacksonville, Arkansas. 1-12

ARTIFICIAL INSEMINATION equipment. World's leading supplier. Write for free catalog. INSEMIKIT COMPANY, INC., Baraboo, Wisconsin. 3-*

SPECIAL MASTITIS OINTMENT. (Procaine Penicillin 100,000 units. Dihydrostreptomycin 100 mg., 10% Sulfamerazine, Sulfathiazole Cobalt 5MG. in sesame oil base disposable syringe). Dozen $4.50 prepaid. New improved mastitis special with 12MG. Hydrocortisone Acetate $6.00 dozen. (Pen-Fz $9.00 dozen syringes). Quantity savings. KENSINGTON VETERINARY AND POULTRY SUPPLY, Kensington, Connecticut. 9-*

KILL FLIES like magic with this new discovery. Sample $1.00 Fly Cake, P.O. BOX 755, Cleveland 22, Ohio. 9-6

MASTITIS TESTERS. Send for free sample and literature. LARAY, INC., Pataskala, Ohio. 11-*

CATTLE MARKERS

ALL-NYLON—NO PAINT to chip out. Many colors. Free catalog. CREUTZBURG & SON, Malvern, Pennsylvania. 10-*

LARGEST, most complete line of cattle markers and livestock supplies. Free catalog. NASCO, Fort Atkinson, Wisconsin. 14-*

FREE illustrated price list world's finest cattle markers 50c each. Halters and other supplies. Save money. Write today. MAC-RA COMPANY, P.O. Box 1409-H, Santa Barbara, Cal. 7-*

DAISY CATTLE MARKERS, solid brass tag and brass-plated chain for horns or neck. Write for free catalog. GOLDEN ARROW FARMS, Dept. C, Huntington, Indiana. 10-*

E-Z REDD TAGS make identity fast and accurate. Colorful contrasting numbers, wear resistant plastic. Available with neck chain and fasteners. Write for free agricultural supply catalog from the world's leading source of artificial breeding equipment, breeding and show ring equipment, plus hundreds of other farm items. INSEMIKIT COMPANY, INC., Baraboo, Wis. 3-*

CATTLE TAGS, chains, straps, nylon rope sets. Anklets, rugged eartags legible 50 ft. Samples. Nearest dealer. BOCK'S, INC., Mattoon, Ill. 7-apl.

FARM EQUIPMENT

SAVE 40%. Hydraulic manure loaders. VAUGHN MANUFACTURING, Waseca, Minnesota. 4-*

HAY CONDITIONERS. Cheaper than you ever dreamed possible! Satisfaction absolutely guaranteed. Write for free literature. CORSICANA GRADER AND MACHINE COMPANY, Box 1017-D, Corsicana, Texas. 10-5

A KLINZING BARN CLEANER can save you the cost of a hired man . . . saves your time for productive work. Klinzing's rugged construction, heavy-duty chain and many other unbeatable features assure long, dependable service. Economically priced for all sized barns. Write for literature, layout and estimate. Dealerships available. A. F. KLINZING COMPANY, Fond du Lac 2, Wis. 10-3

DEPRESSION PRICES. We sell cheap. Save 75% off-new and used tractor parts, crawlers and wheel tractors, 190 makes and models. 1960 catalog ready. Send 25 cents refundable. SURPLUS TRACTOR PARTS CORPORATION, Fargo, North Dakota. 4-10

ELECTRIC WELDERS: New, heavy-duty, 180 amp. Free trial. Dealerships open. 20 year warranty. 8159 South Pleasant. DEPARTMENT L. Minneapolis 20, Minnesota. 2-24

FOR SALE: 2 Comp. Louden Hay driers, 7½ hp motors, 42" fan. Like new at ⅓ cost $950 each. Owner closed dairy. Call Chicago, DEarborn 2-6903.

BARN EQUIPMENT, barn cleaner, comfort stalls, stanchions, milking parlor stalls, windows. Guaranteed. Immediate shipment. STANDARD EQUIPMENT, INC., Dept. 3-C, Bel Air, Maryland. Phone 417. 8-*

DAIRY EQUIPMENT

FOR SALE: DeLaval pipeline milker, 4 units, used less than one year, perfect condition; 400-gallon Sunset bulk milk cooler, like new. WILLIAM T. STOVER, Kingsley, Iowa.

DAIRY EQUIPMENT

CHOREBOY PIPELINE milking equipment for 12-stall parlor, complete. From private party. Write: P.O. BOX169, Fort Atkinson, Wis. 11-2

IRRIGATION EQUIPMENT

IRRIGATION—Auto Rain aluminum pipe, Gorman Rupp pumps, design service, low installed cost. MICHIGAN ORCHARD SUPPLY COMPANY, South Haven, Mich. Phone 252 6-*

SILOS

P & D SILO UNLOADERS handle hard packed and frozen silage. Large capacity. A boy can feed 100 head in 10 to 15 minutes. 30 days free trial on money back guarantee. Also heavy duty auger bunk feeders. Dealership available in some areas. P & D SALES COMPANY, Plainfield 6, Illinois. 20-*

SILO GLAZE. Silo walls crumbly? Spoilage near walls? Use DeMuth Penetrating Silo Glaze. Easily applied. Write today. FROBERG DISTRIBUTING CO., Valparaiso, Indiana. 5-8

BUSINESS OPPORTUNITIES

WANTED! National and Regional representatives for modern line of dairy and hog pharmaceuticals. Progressive formulations and streamlined packaging. Must have strong following with agricultural outlets. Other non-competitive lines acceptable. Please contact immediately giving full details. All replies confidential. BOX 461, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 10-2

BE INDEPENDENT of up-and-down weather and prices. Own a coin-operated unattended Westinghouse Laundromat (R) Store. Manage in your spare time. Have a good year every year, even when up-and-down weather and market prices work against you. You can net $5,000-$10,000 a year in extra income by owning a licensed Westinghouse Laundromat Laundry Store in your own community. We have assisted in establishing over 10,000 successful laundry stores which serve farm, ranch and town families—hundreds in com. munities with populations under 1,000. Coin-operated, no attendants needed. And you don't need experience, only a small investment. We finance your equipment up to 90%. We've helped lots of farmers and ranchers get into this profitable new business. Why not you? Call or write today for full details. Offices in principal cities. ALD, INC., Dept. H. 7045 N. Western Avenue, Chicago 45, Illinois. ROgers Park 1-6500.

FARMS FOR SALE

SOUTHERN WISCONSIN dairy farms described and pictured in our catalog mailed to you free. Over 150 farms, many with low down payments, from 3 acres to 770 acres. 181 day growing season, exceptional corn production and ample rainfall, in this area. Write today for your free copy. LOGANWAY, INC., Southern Wisconsin's Leading Farm Brokers, Fort Atkinson, Wisconsin. 12-*

SOUTHERN ALABAMA—$300,000 dairy and tung oil tree operation with terms. Special milk market for all milk. Golden Guernsey registered herd from Northern Michigan. $8.00 per hundred weight—over 300 cows—could build higher. Modern herringbone set-up. High tung crop income also. Many extras. 2000 acres crop land out of 2500 acres. PLANTATION SERVICES, Henry M. Goodyear, Jr., Realtor, 504 N. Blappey Drive, Albany, Georgia. 10-4

GOOD SOUND WISCONSIN farms. Pfister Farm Agency, BERT PFISTER, Mt. Horeb, Wisconsin. 15-*

BEAUTIFUL BLACKBELT FARMS. All sizes. WINSLETT REALTY COMPANY, Marion, Alabama. 9-apl.

FLORIDA—dairy farms. Write BUD STOFFEL, C. Watkins, Realtor, 1227 E. Colonial, Orlando, Florida. 5-apl.

640-ACRE FARM, 100 good Holstein milk cows, 2 modern 8-room houses, 2 large full basement barns, 4 concrete silos, milkhouse with bulk milk cooler, 135-foot machine shed, 2-car garage, 3 large tractors, chopper with hay and corn attachments, 3 chopper wagons, grain combine, baler, elevator, corn picker, grain drill with all attachments, 1¼-ton truck and all farm machinery, complete line, good condition, with all feed, tools, crops growing or harvested for the price of $120,000 with $35,000 cash down and milk check assignment on balance and 4% interest. Wonderful farm setup and income that will pay off. Contact: A. N. Brunner, Leopolis, (SHAWANO COUNTY). Wis., representing United Farm Agency, phone Gresham 3156. (Could be incorporated and operated as such.)

201 ACRES! $1,000 down! Exciting Wisconsin farm bargain! Highly fertile soil, 50 acres tillable, rest partly-wooded pasture, flowing crystal clear creek, 9 springs, several trout pond sites. Buildings situated in scenic protected valley. See picture in catalog—6-room 3-bedroom house, running water indoors, fully insulated. 50-ft. barn, new concrete block milkhouse, brooder, garage, corn crib. Rather secluded, yet on well-maintained road, 5 miles 2 villages. Elderly owner's loss, your gain, $8,000, only $1,000 down! New free 160-page summer catalog, 950 photos, bargains coast to coast! UNITED FARM AGENCY, 1304-HD Consumers Bldg., 220 South State Street, Chicago 4, Illinois.

FREE FARM CATALOG picturing and describing farms listed throughout Southern Wisconsin. Your copy is ready. Write today. LOGANWAY, INC., Fort Atkinson, Wis. 5-*

FARMS FOR SALE

VIRGINIA livestock, dairy farms and country estates. P. M. BROWNING, Realtor, John H. Hitt, Associate, Culpeper, Virginia. 12-*

GRADE A DAIRY FARM, South Eastern North Carolina, year around pasture, 119½ acres, paved road, brick house, 762.7 lbs. daily base 29 cows, 13 heifers, bulk tank. BOX 466, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 11-2

WESTERN WISCONSIN farms. 80 acres and up. Wide choice. $30 to $200 per acre. Write for price lists. HATHAWAY AGENCY, Hammond, Wisconsin.

MARYLAND: 400 acres productive land, 30 woodland, 100 pasture, rest contoured cropland. 50-stanchion tile barn, 100-cow loafing barn, 2 bank barns, 3 silos, sheds and quarters for 5 families. Very profitable operation shipping to Washington. Excellent registered Holstein herd and equipment can also be purchased. W. C. PINKARD & COMPANY, First National Bank Building, Baltimore 2, Maryland.

GRADE A ALASKA 200-acre dairy farm. House, dairy barn, pipeline milker, machinery, 80 cows, $150,000. Terms, 2 miles to Palmer. Milk $11.50. HENNING BLUNCK, Palmer, Alaska. 11-2

FOR SALE: A good 80 stocked and equipped, including a young herd of registered Jerseys. All cultivated, close to town, on blacktop. Priced for quick sale. VERNON F. PETERSON, Route 4, Rice Lake, Wisconsin.

FARMS WANTED

MORE DAIRY FARMS needed to sell. Extreme Northern Illinois, Southern Wisconsin. H. E. GILBERT, Realtor & Associates, Elkhorn, Wisconsin. (Over 20 years successful experience at your service.) 6-*

WANTED TO RENT large farm for 1961 for father and son's setup on 60-40 basis. Lifetime experience in general farming or dairying. BOX 462, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

POSITIONS WANTED

ARTIFICIAL INSEMINATOR, nine years successful experience, high conception rate, references. Excellent knowledge of good management practices. Desires connection with large herd, beef or dairy. Florida preferred. Will consider other locations. Available after June 1. BOX 463, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

WANTED: To operate stocked and equipped dairy farm on shares in Wisconsin. Lifetime experience in dairying and farming. BOX 465, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 11-2

HELP WANTED

WANTED: Experienced artificial breeding technicians. Through our frozen semen program and freezers, areas may be developed in any state. References required. Write PIPER BROTHERS FARMS, Watertown, Wisconsin for details. 9-*

HERDSMAN for large Guernsey herd, located in Southeastern Michigan. Top wage with percentage plan and small modern house. Must be thoroughly experienced in handling, feeding and caring for cattle, and be able to take complete charge of a large herd. Write BOX 460, care Hoard's Dairyman, Fort Atkinson, Wisconsin, stating complete work history, age, family status and references. 10-2

OPPORTUNITIES for men who want steady employment on a large certified milk farm. Paid vacations, sick benefits. Write for information. We want sober and reliable men. WALKER GORDON LABORATORY COMPANY, Plainsboro, N. J. 9-apl.

WANTED: Assistant farm manager, capable of taking charge of a 750-acre farm. Experienced in all phases of mechanization and for growing small grain, corn and soybeans. Give history, salary expected and references in first letter. FOLEY DAIRY AND FARMS, Box 1525, Foley, Alabama.

WANTED: Man to operate dairy farm Northern Illinois, modern house on premises. Prefer younger man. Give complete lifetime working record, personal history, salary requirements and when available to start. BOX 467, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

WANTED: Elderly man to help with dairy chores in exchange for good home plus small wage. LIONEL RUEL, Route 1, Bourbonnais, Illinois.

WANTED: All-around dairyman, about 35 years old, one with experience and able to manage full dairy operations on a 50 to 100 cow Holstein and 640-acre grain farm. Give references and wages expected. WENDELL KLOCKMANN, Enderlin, North Dakota.

DAIRYMAN for extra high-producing registered Holsteins, also show. Old but modern 2-bedroom house so prefer couple only. Milking 31 cows now. One other man to work with, expect both men to work together. Cows and young stock are expected to be well cared for at all times. Please state your experience, age, size of family, and salary to start with. Call Jackson 6-3065 or write: RAY L. TUCKER, Route 1, Box 217, Barrington, Illinois.

HERDSMAN: For 100-cow registered Holstein farm in Willamette Valley near Portland, Oregon. Must be reliable and sober. Experienced in testing, showing and breeding good cows. 1959 DHIA over 500 lbs.—HIR over 600 lbs. Pipeline milker, bulk tank and all modern machines. References required. Wages $350 month plus 5-room house and extras. 6-day week. BOX 464, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

WANTED: Dairy farmer. Married or single. Give age, experience, references of past employers. Write: MILTON KERR, Cambridge, Wisconsin.

WANTED: Single man as assistant herdsman and general farm work. T. E. COURTNEY, De Kalb, Illinois. Phone 6-4811.

SWINE

WISCONSIN FEEDER PIGS for sale. 40 to 50 lbs., castrated, all top slick pigs. Delivered direct. 5 day guarantee. C. ACKER, Middleton, Wisconsin, TE-6-3451. 9-*

DOGS

GENUINE English Shepherd and Collie Pups. Healthy and strong. Guaranteed heelers. Year's trial. Choice of sex. Spayed females a specialty. Priced right. CLOVERDALE KENNEL FARM, Ackley, Iowa. 18-*

SHEPHERDS, COLLIES. Outstanding Heelers, Watch Dogs. ZIMMERMAN FARMS, Flanagan, Illinois. 2-*

POULTRY—BABY CHICKS—DUCKS

BIG Leftovers-Fryers, heavies included, some Pullets, $1.49 to $5.99. 60 breeds. BUSH HATCHERY, Clinton, Missouri. 11-6

HAY AND BEDDING

GRADED DAIRY ALFALFA and other grades hay. ART CALLARI HAY COMPANY, Upper Sandusky, Ohio. 20-*

AUCTIONEER SCHOOLS

LEARN AUCTIONEERING, terms, soon. Free catalog. REISCH AUCTION SCHOOL, Mason City, Iowa. 23-*

LEARN AUCTIONEERING. Free catalog! MISSOURI AUCTION SCHOOL, Box 9252D4, Kansas City, Missouri. 19-*

OF INTEREST TO WOMEN

YOUR CHILD'S PHOTO WANTED! Big demand for advertising purposes. Mail photo, name. Free rating, information. GUILD, 5032-ARL Lankershim, North Hollywood, Calif. 11-apl.

AVERAGE $2.00 HOUR spare-time, assembling our lamps. Simple. Easy. No canvassing. Write: OUGOR, Caldwell 24, Arkansas. 4-*

$2.00 HOURLY possible sewing our ready cut aprons at home. Spare or full time. Experience unnecessary. Write A & B ENTERPRISES, Caldwell 17, Arkansas. 6-*

HAVE A PROFITABLE HOBBY sewing aprons, children's wear. Details free. REDIKUT'S, Loganville 15, Wisconsin. 9-apl.

WOOL QUILTS: Send us the wool from your old woolen quilts to be washed and recarded. Woolen rags reworked into quilt batts and blankets. SPRINGFIELD WOOLEN MILL, Springfield, Minnesota. 11-2

MISCELLANEOUS

HOW TO TRAP SPARROWS with elevator traps. Information every farmer should have. No obligation. It's free. Write SPARROWTRAPS-605, Detroit Lakes, Minnesota. 9-4

HORSE, SHEEP, barber clipper blades expertly ground $1.00 set. Send now or write for shipping labels. BUCYRUS GRINDING COMPANY, Box 106B, Bucyrus, Ohio. 9-apl.

SEPTIC TANKS, cesspools, outdoor toilets. Keep clean and odorless with Northel Septic Tank Reactivator. Bacterial concentrate breaks up solids and grease — prevents overflow, back-up, odors. Regular use saves costly pumping or digging. Simply mix dry powder in water —flush down toilet. Non-poisonous, non-caustic. Six months supply only $2.95, postpaid (money-back guarantee of satisfaction), or rush postcard for free details. NORTHEL, HW-6, Box 1105, Minneapolis 40, Minn.

SPARROWS COSTLY. Trap pests. Guaranteed Ready-Built or build own trap. Free particulars. SCHAEFER, Box 601, New Albany, Indiana. 11-2

RESEARCHERS: Use fast, accurate Metzger's Table of 45,000 Percents. Range: To 100.00%; 309 denominators; 309 numerators; 55 pages; $5.00. BOX 717, Atlanta 1, Georgia.

DAIRY CATTLE WANTED

WANTED: 50 Jersey, 50 Holstein heifers calving in August. SAM ROBIN, Brookhaven, Miss.

DAIRY CATTLE

NEW LOADS WEEKLY from Shores' Wisconsin Association herds. Special truck load prices $200 up. Bang's, Lepto, Shipping vaccinated. Delivered. Travel expenses refunded. Premiums. HAROLD SHORES, Neligh, Nebraska, TU 7-4060, TU 7-4850. 9-*

CANADIAN Registered Holsteins. Young vaccinated cows and heifers. Buy direct from the farms. Elgin County Holstein Breeders Club. Telephone Talbotville, Ontario 6-R-12. DON SHORE, R.R. #6, St. Thomas, Ontario, Canada. 7-*

KENYON BROTHERS FARM serving the dairy farmer for forty years. Large selection of choice Holstein cows and first calf heifers, fresh and close springers, service bulls. T.B. and Bang's tested. In carload or truckload lots. KENYON BROTHERS CO., Elgin, Illinois, Phone 8Herwood 1-1818. 19-*

REGISTERED HOLSTEINS: A few service age bulls, some younger males, foundation females and heifers. Nearly all sired by excellent sires and from classified dams with HIR records. SanMarGale FARMS, Box 365, Lebanon, Ohio. Phone 5-2606. 22-*

BUY YOUR VACCINATED dairy cows and heifers direct from the farmers where quality prevails. GEO. E. SWANSON, Rice Lake, Wisconsin. Phone 944R. 3-23

KEATING BROTHERS FARM offers large selection fresh and springing selected cows and heifers, strictly quality. Dairymen—buying on order will save you time and money. Call or write Fort Atkinson, Wisconsin. Telephone JOrdan 3-5905. 18-*

HIGH QUALITY Holstein and Guernsey springers and heifers all sizes. J. W. & BILL GEURKINK, telephone 332 or 21F31, Baldwin, Wisconsin. 15-*

HOLSTEIN cows and heifers with production, type and size from our foundation Wisconsin herds. Artificial breeding, calfhood vaccinated, Bang's and T.B. tested. PIPER BROS., Watertown, Wisconsin. Telephone 2170. 6-*

24 ONE-YEAR-OLD Wisconsin Holstein heifers. T.B. tested, Bang's vaccinated and dehorned. LESTER LEWIS, Monterey, Indiana.

MORE SPECIAL OPPORTUNITIES ON NEXT PAGE

Special Opportunities

DAIRY CATTLE

WISCONSIN DAIRY CATTLE, Holsteins. Springing cows and first calf heifers. Heifers for early fall freshening, also open heifers any size. We have drivers available to buy direct from farmers, or will fill orders at your direction. GONNERING BROS., Livestock, Route 1, Kaukauna, Wisconsin. Phone Little Chute ST-8-3332. 7-12

FOR SALE: Holstein springing heifers and cows. Good selection of open and bred heifers. R. B. BRICHER, St. Charles, Illinois. Phone JU-4-2347 days, JU-4-2895 nights. 5-24

WHOLESALE DAIRY CATTLE, $200 and up. TOWNE LIVESTOCK COMPANY, phone 51M, Rosendale, Wisconsin. 10-3

TOP QUALITY HOLSTEIN springing cows and first calf heifers. Heifers for early fall freshening. We also ship on orders. Write: ELGAS BROTHERS, Jefferson, Wisconsin. 10-4

DODGE COUNTY HOLSTEINS. Heifers of all ages from the Heart of Dairyland. Write for details. HICKEY BROS., Juneau, Wis. 10-3

100 DAIRY CATTLE for sale, both Jerseys and Holsteins. Sell all or a major fraction thereof. Together with two year lease, subject to renewal, or will sell cattle without lease. Price of milk at present is $5.20 per hundred, 4% milk. Good equipped parlor setup. Terms of lease include 5 per cent of gross milk check. For further information write: MILTON TOWNSEND, Star Route, Box 72, Clovis, New Mexico. -10-*

ATTENTION SOUTHERN DAIRYMAN! International Dairy Livestock Sales can supply you with all breeds of select dairy cattle from Canada and the Northern States. Nobody underselis International for price or quality. We have only satisfied customers because all cattle are guaranteed to be sound. Write Bob Curley or Tom Rossin c/o INTERNATIONAL DAIRY SALES, Box 1461, West Palm Beach or phone collect OVerland 3-1992. 5-spl.

I HAVE MOST all breeds choice dairy heifers. Bred and heavy springers. Mountain grown are best. Will deliver. A. L. KELTNER, Greeley, Colorado. 17-spl.

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HOLSTEIN COWS and springer heifers with size and production. Bought directly from leading herds. Sold at low overhead prices. We fill orders, before you buy contact us. DEAN YODER, Danvers, Illinois. Phone Yorktown 3-4774. 5-spl.

DAIRY HEIFERS, all sizes. Top quality heifers that will develop into top cows. JIMMY AKIN DAIRY CATTLE, Brentwood, Tennessee. Phone Nashville VE 2-0605. 11-*

300 HEAD high-grade Holstein cows and heifers. We are changing to purebreds. Come at once, get your choice. Will sell any number. Terms up to 2 years to pay. BOTTEMA FARMS, R.R. #2, Box 206, Indianapolis, Indiana. Terrace 9-6575. 11-4

BROWN SWISS bull calf by Lee's Hill Kayak M. Dam by Lee's Hill Lucky Strike. 6 nearest tested dams average 332 days, 18,734 milk, 804.6 fat. Pedigree on request. MISS BARNETT III, Walhalla, South Carolina.

120 TOP QUALITY Wisconsin Holstein heifers to freshen after August 1. Bang's vaccinated. Bred to high record bulls. WOOD-JON FARMS, Valparaiso, Indiana. 11-2

HOLSTEINS: Bred heifers for sale due to freshen July to September. Also, younger heifers. From our T.B. and Bang's free herd. HAWTHORN-MELLODY FARMS, Libertyville, Illinois. 11-2

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WISCONSIN HOLSTEINS for the Southern states. Heifers and cows on hand at all times, originating from the best producing herds in Southern Wisconsin. Artificial breeding. Bang's and T.B. tested for any state. Call P. R. ELAM, Marshall, North Carolina, phone 3451, or Mars Hill, North Carolina, 2381 nights. 22-*

WE ARE NOW READY to fill your orders for Holstein and Guernsey cows and heifers. Shipped direct from farmer to you on commission basis. CHET BURNSTAD & SON, Tomah, Wisconsin. Phone Tomah 406-M or 752-R-12. 16-*

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CHOICE HOLSTEIN cows and heifers, all ages. Vaccinated. T.B. free. Fieldman available, or will fill orders as directed. Whitewater Dairy Association, DEAN HARNDEN, Whitewater, Wisconsin. Phone Palmyra 358. 1-*

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CANADIAN HOLSTEINS, registered, T.B. and Bang's certified, from R.O.P. herds. J. M. GILCHRIST, Wellington Co. Sales Agent, Route 5, Guelph, Ontario. 15-spl.

Sales Announcements

June 15, 1960 Holsteins—Mrs. Everett Hauert & Son dispersal, Elwood, Illinois, on the farm 9 miles south on U.S. 66A from Joliet, 2 miles East on Manhattan Blacktop, then 1 mile South. 10:30 A.M. 60 head. Auctioneers and Sale Managers: A. C. "Whitie" Thomson, Burlington, Illinois; Wm. "Pat" Williams, Batavia, Illinois.

June 18, 1960 Guernseys—John Pierzina dispersal, 1½ mile northeast of Grand Rapids, Minnesota, to bridge and 6 miles east. 38 head. For catalog write: Thorp Sales Company, Box 508, Anoka, Minn.

July 23, 1960 — Ayrshires—Second sale. Strathglass farm dispersal, Port Chester, New York. 10:30 A.M. Sales Manager, Granger Sales Company, Thompsonville, Connecticut. For catalog write Sales Manager or Strathglass Farm.

Ayrshire breed in black

Spirits rise as registrations and transfers climb. Grand National averages $1,027, all-time high.

AFTER seven years of operating in the red, the Ayrshire Breeders' Association moved into the black last year. That was the report of officers of the association at its 85th annual convention in St. Paul, Minn., May 6. Breeders from coast-to-coast took heart from the increase in registrations and transfers by capping their annual meeting with a record-breaking Grand National Ayrshire Sale, which averaged $1,027.

David Gibson, Jr., completing his second year as executive secretary-treasurer of the association, summarized the "encouraging and favorable signs." They were a 27 per cent increase in numbers registered, .6 per cent increase in transfers, and auction sales grossing 76 per cent more than in 1958.

In his outline of responsibilities for the future, Gibson asked for:

1. Maximum registrations to assure best prices for Ayrshire cattle and to assure continuing advance of the association.

2. A progressive attitude on the part of breeders toward herd management to attain the highest possible practical production.

3. Cooperation within the breed combined with advanced planning to assure the future success and growth of the breed.

Moratorium influence . . .

Treasurer George Cushing warned those in attendance that some of the gain realized last year was the result of a six-month moratorium on registrations, and that it is possible the financial picture would have "gone the other way" without the moratorium. He chided Midwestern and Western states for their failure to fulfill their building fund quotas. Actually, the obligations involved in paying for the new Ayrshire home office, dedicated in 1952, have been largely responsible for the association's financial difficulties the past seven years. California responded with a $750 payment during the meeting.

Highlight of an afternoon-long panel discussion was the challenges set forth by C. Fred Foreman of Iowa State University. He counseled breeders to "forget boasting about how little Ayrshires can get along on." He urged dairymen to promote production, not worry about adapting a cow on how to get along under poor conditions. He said, "A good cow deserves the best . . . and so does her owner."

Another suggestion from Foreman was to consider more carefully the type of cattle to be bred. He suggested the possibility that more emphasis be given to longer, larger, more-open-ribbed cows.

A third question raised by the Iowa State researcher had to do with the age or size of breeding Ayrshires. He suggested that research be carried out to determine if breeders are waiting unnecessarily long to breed for first calving.

Ashton re-elected . . .

Re-elected president of the national association was William H. Ashton, owner of Delchester Farm, Edgemont, Pa. Ashton had been president in 1953 and 1954, and again in 1959.

Other officers elected were:

First vice-president
Henry E. Mosle, Connecticut
Vice-presidents
John C. Keas, Kansas
Dr. Everett M. Laury, Illinois
Cuthbert Nairn, Pennsylvania
Directors
V. M. Hawkins, Jr., Vermont
G. A. Bowling, New York
Wm. J. McCahan 3rd, Pennsylvania
Dwight Knipp, Ohio
Herman Klingel, Indiana
Dr. R. B. Graves, Minnesota

Winner of the coveted Distinguished Service Award was Elmer Hanner, Elk Grove, Calif. A veteran breeder, Hanner started his own herd in 1920, showed his first grand champion at a state fair in 1930, and had the highest classified herd for the breed in the early 1950's. He has a long record of helping 4-H boys and girls get started as dairy cattle breeders.

A Rhode Island cow won the coveted French trophy for having the highest ranking record on the official herd test program of the association. Galney Rosette H, owned by Robert L. Knight of Lippitt Farm, Hope, R. I., won the award with her record of 20,554 pounds milk and 866 pounds butterfat, all produced on twice-a-day milking and in a 305-day lactation. She began the record at 11 years, 3 months of age.

How far does a housefly fly? Usually between 1 and 8½ miles with a maximum range of about 20 miles.

—Scan

The top-selling animal in the record-breaking Grand National Sale was Jon-Ell Grand Butter Maid, a second-calf heifer consigned by John Knipp and Sons of Jon-Ell Farms, Lindsey, Ohio. This stylish daughter of Windrow Sixty Grand went to Dr. R. B. Graves of Mor-Ayr Farm, Red Wing, Minn.

Ayrshire activity . . .

	1958	1959 (+ or —)
Female registrations	16,537	21,195 +
Male registrations	1,585	1,855 +
Total registrations	18,122	23,050 +
Registrations from A.I.	5,741	8,138 +
Per cent of total from A.I.	31.7	35.5 +
Total transfers	12,417	12,491 +
New members	105	124 +
Total membership	9,558	9,711 +
Herds on herd test	449	425 —
Cows on herd test	12,269	12,269
Herds classified	184	132 —
Cows classified	4,026	3,363 —
Income	$152,009.67	$159,463.54 +
Expenses	161,533.99	159,038.44 —
Net for year	—6,026.38	+2,729.47 +
Net assets	221,158.72	227,104.77 +
Current liabilities and mortgage	34,915.28	40,707.17 +
Surplus	190,886.40	195,896.96 +

DISPLAY

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BADGER BREEDERS CATTLE SALES DIVISION
PHONE 677 SHAWANO, WISCONSIN

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ARTIFICIAL BREEDING SERVICE
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"PROVEN" and HIGHLY CLASSIFIED SIRES. SERVICE NOW AVAILABLE IN MANY PARTS OF THE NATION AS WELL AS IN WISCONSIN.
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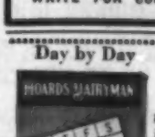

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Over 500 Lbs. Fat
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19 YEAR AVERAGE—113 COWS—
10,334 LBS. MILK, 551 LBS. FAT.

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BROWN SWISS

OUTSTANDING BROWN SWISS HERD SIRE PROSPECTS

Sons of excellent cows, four with excellent mammaries and records to 881 fat. Most of the bulls now available are by Norvic Master Inflelder. Our thirteen classified cows average 88.2 with 5 excellent, 5 very good and 3 good plus and have 2 DHIA herd averages of 11,357 milk 4.4% 504 fat. Write or visit for pedigree and price. UNIVERSITY OF NEBRASKA DAIRY DEPARTMENT, LINCOLN, NEBRASKA.

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HOME OF:
242 classified animals that average 84.4% 216 tested cows that average 575 lbs. fat (305-2X-ME)
SPECIALIZING IN SPECIAL BULLS FOR SPECIAL RESULTS.

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About the
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BROWN SWISS:

- ARE HARDY AND RUGGED: No dairy breed surpasses the Brown Swiss in ability to produce under all kinds of conditions.
- HAVE A LONG-MILKING LIFETIME: Brown Swiss are noted for long life, thus giving a long period of profitable production.
- ARE EXCELLENT PRODUCERS: While several cows have yearly records of over 1,200 lbs. of fat, individual records of 700 to 900 lbs. and herd averages of 400 to 500 lbs. fat are not uncommon in the Brown Swiss Breed.
- PRODUCE A QUALITY PRODUCT: Brown Swiss milk is pure white in color and averages 4 per cent butterfat.
- ARE QUIET AND ATTRACTIVE: The affectionate disposition, and uniformity of type and color in Brown Swiss cause them to be admired by everyone.
- HAVE HIGH SALVAGE VALUE: Calves that weigh 80 to 100 pounds at birth, and mature animals that weigh 1000 to 2400 pounds will always have a relatively high veal and beef value—here, Brown Swiss are tops.
- ARE GOOD FEEDERS: The strong constitution of Brown Swiss give them a great capacity for consuming and digesting economical roughages.
- HAVE A LARGE DEMAND: Once you develop a herd of Swiss, your surplus stock will find a ready market. "The Farmer's Cow" is becoming more popular with dairymen the country over.

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BROWN SWISS ASSOCIATION BELOIT, WISCONSIN

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Three of our registered Ayrshires are calving soon. Take a bull calf, use him until 3 years old FREE. Write: CORKWELL and WEIMER, Mt Sterling, Ohio.

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NOW YOU CAN BUY
POLLED AYRSHIRE BULL CALVES

That are from high producing families
That are of Carefree Farms & Penshurst Breeding
That give you excellent type calves
That are priced at prices sure to please

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AYRSHIRES

THESE 8 AYRSHIRES IN ONE HERD MADE

1,054,346 lbs. 4.3% milk Actual, milked only twice daily.

THIS IS AN ACTUAL AVERAGE OF 12,552 LBS. MILK, 534 LBS. FAT PER COW PER YEAR. Their average age is 12 YEARS AND STILL PRODUCING. This is proof that Ayrshires give you extra years of profitable production and extra income from registered calves. Your opportunities for National leadership with Ayrshires are unexcelled.

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Any age from calves to ready for service, sired by Arn Herm Pabst Regal—DHIA high record dams. Write or visit us for full description.

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We offer this month a very typy young bull born 3/26/59. His dam classified VG at 2 years of age and produced 12,560 lbs. of milk as a 2 yr. old. Her dam has 17,650 lbs. of milk and is classified VG. This bull is from our best cow family. Call or write Carl Medsker at Graysville 2-3319 or 2-3067 for further information.

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Ear tag # 8-163—born August 31, 1959

This month we offer the calf pictured above. He is sired by San Mar Gale Wis Nobleman. His dam produced 17,360 lbs. milk and 614.7 lbs. butterfat in 10 months on 2X milking.

For price and pedigree write:

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His sire, Frases Ideal Pilot, is a "Very Good" Gold Medal sire with an average type score of 85.4 on all his classified daughters. The daughters score especially high in udders and rumps.

His "Very Good" 966 lb. dam is by an "Excellent" Gold Medal sire who, in turn, is by an "Excellent" Gold Medal sire, and she is from a "Very Good" 1314 lb. full sister to former world champion Carnation Homestead Daisy Madcap. Her best record and the best records of her dam, grandam and etc. for 5 direct generations average 29,073 lbs. milk, 1129.3 lbs. fat 3.9% average test. In addition she has proven to be a top breed cow.

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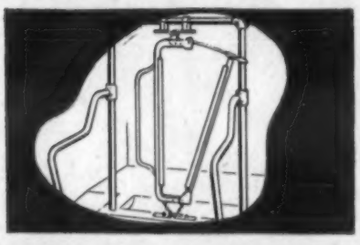

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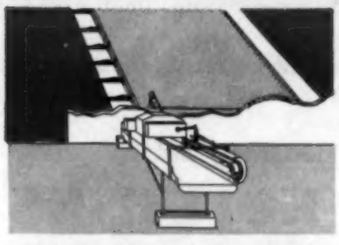

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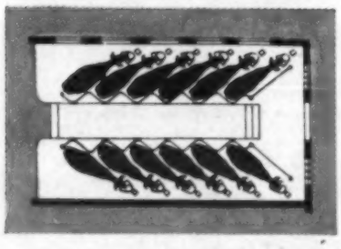

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SWINE

Leptospirosis . . .

. . . is now reported in 30 states and is becoming more common in swine herds. It usually reaches its peak during warm, wet weather.

by Fred J. Giesler

CATTLEMEN are much better acquainted with leptospirosis than hogmen because it has cost the cattlemen of this nation $120 million annually and has been reported in 30 states.

Spread from cattle to swine or vice versa through infected urine, the disease is known to be transmitted by direct contact between infected and susceptible animals. Some authorities have suggested that rats and ticks may spread some types of leptospirosis.

Lepto may occur in any season of the year. However, there seems to be a definite seasonal peak during the warm months, especially during wet weather. For that reason it has been chosen as the disease to especially watch for during the wet season.

More than 3,000 cattle and swine herds were tested in 92 Illinois counties. The test showed that one out of every three herds reacted positively. Of the individual animals tested, about one out of every six reacted.

Abortion common sign . . .

Symptoms may appear in swine at any age. As in the case of many other diseases, symptoms may be confused with other infections.

Abortion, for example, may be ascribed to brucellosis whereas leptospirosis may be responsible.

This disease causes few visible symptoms in older pigs or adult hogs. But suckling pigs may have fits, or other nervous symptoms.

The first visual evidence of lepto in a herd usually is an abortion outbreak in the brood sow herd.

In mild cases in adult swine, the disease may escape attention altogether. Even in the mildest form of the disease, abortions usually take place two to four weeks before the sows are due to farrow.

The disease is not only a hazard to animal health, but also can be contracted by man. When a man has it in foreign countries, it is called swine herdsman disease because it is contracted by persons who take care of the infected swine. However, in the United States, people in related occupations have been infected with lepto. This includes packing house workers, veterinarians, and persons who have been in contact with waste material from contaminated herds.

Source of infection . . .

Animals usually contract leptospirosis from infected urine. When the disease is acute, the organisms are present in the blood, the urine, and many of the tissues and organs of the diseased animal.

When the disease is chronic, the organisms are localized in the kidneys and are discharged in the urine. The chronic cases are the most serious cause of spread of the disease because they show no visible signs and usually are overlooked.

For these reasons, infected hogs are among the more dangerous carriers of the disease. They may shed the infected organisms in urine for six months or more.

The infective organisms of leptospirosis cross and reproduce only in the infected animal, but they may live on dead or organic matter. They survive in ponds, streams, or stagnant water and may infect animals at this source.

The infectious germs of leptospirosis are very sensitive to heat and can be destroyed rather easily by pasteurization temperatures. These bacteria cannot stand dry or alternate freezing and thawing.

Soap and common household antiseptics will kill them if they are applied directly to the organisms. Sanitation is one of the best defenses against the disease.

Producers have been advised to blood test new animals for leptospirosis before they are introduced on the farm. Evidence indicates vaccination also can be used to help clean up some cases against carrier animals that are spreaders.

The producer, himself, can take several steps which will help prevent leptospirosis in addition to buying only clean stock. One is to place the feed and watering facilities so that they will be less likely to become contaminated by urine.

Stock should be kept out of damp, low pasture and areas close to slow-moving streams and stagnant ponds which may hold disease organisms.

75 years ago...

Every dairy farmer at least should keep a scrap book in which to paste, under appropriate headings, such facts as he may come across, either in reading or otherwise, that he believes to be valuable. He cannot trust to his memory any more than a doctor or a lawyer and yet accurate knowledge is just as necessary to him in a thousand things.

We aim to make the Dairyman a repository of valuable facts, hints, and ideas. We employ every effort possible to make it a thoroughly reliable adviser concerning the questions it treats upon. We do not think the paper is, by any means, infallible, but we do know that it contains the results of thorough and valuable experience.

If this is true, those to whom it is addressed should treat it as they do their money; viz, lay by some portion of it for future use and emergency.

W. A. Hoard

VETERINARY COLUMN

E. A. WOELFFER, D.V.M.

New methods of pest control

Chemical sprays, for many years, have been used to eradicate pests from livestock and plants. More recently other methods were used, some of which have already proven practical.

One of the more interesting new "biological warfare" techniques is that used against screwworm. Screwworms have been completely eradicated through release of male screwworm flies which have been sterilized by gamma radiation.

A few years ago Texas research workers learned that screwworm pupae (a stage of development) exposed to X-rays or to gamma rays from a cobalt source turned into sterile adult flies. In 1954 a large-scale test was conducted on the island of Curacao. By the weekly release of sterilized males at the rate of 400 per square mile, screwworms were entirely eradicated inside of five months.

In 1957, large-scale work was started in Florida. Larvae were reared on a mixture of ground meat, blood, and water. Tons and tons of horse meat were used to produce two million sterilized flies which were released each week.

Scientists tell us success from such a program depends upon rearing enough insects so treated males dominate natural males in a ratio of at least 2 to 1. It is estimated that 6 per cent of the females will mate with sterile males and produce no offspring.

In the next generation, the mating ratio of sterile to natural males becomes 6 to 1. In the third, 42 to 1, and by the fourth generation the percentage of females that, theoretically, mate with sterile males is 99.95 per cent.

So well did the theory work in practice that the eradication program was terminated in November 1959. In other words, no screwworms have been found in livestock in the Southwest for a period of six months.

This same method also gives promise for eradication of some plant insects. Perhaps a similar program eventually will be developed for the eradication of flies, mosquitoes, and other pests. Research in this field will be watched with interest.

PREVENTING DISEASE IN CALVES

I have been losing many of my calves when they are 2 to 3 days old. Symptoms indicate scours.

My veterinarian made a microscopic test and said the calves were suffering from coccidiosis. He prescribed a liquid. However, the last couple of calves did not show signs of being ill and within a few hours they would be dead.

The calves I have lost had not been taken from their mothers. I usually leave them with the mothers until they are 5 to 6 days old. They are placed in a dry barn, on hay, along with their mothers as soon after calving as they can walk. The cows calve in an adjoining small pasture that is dry.

Andalusia, Ala. J.P.W.

Without firsthand observation of environmental conditions, type and quality of roughage available, and so forth, to the springing cows, it is difficult to make helpful suggestions. Besides coccidiosis infection, it may be the calves are suffering from a calf septicemia. This condition may develop from a number of bacteria or some types of virus.

It is important that the calf gets colostrum, preferably within a half hour after it is dropped, and continues to receive it for at least three days. It provides normal antibodies and vitamin A. If the diet of the dams has been deficient in carotene or vitamin A for a prolonged period, the milk will have very little of this vitamin present. In such a case, a vitamin A concentrate should be provided. In addition, other treatments, such as antibiotics, fluids, and so forth as prescribed by your veterinarian, are usually indicated.

Suggest, also, that you and your veterinarian work out a program of prevention and treatment of sick calves.

SWELLING IN UDDER

Shortly before one of our cows dried up, she developed a swelling in her udder. Now after she has been dry for a month the condition is still there, sometimes more swollen and sometimes almost gone.

Can you tell us anything about this condition? When she freshens, is there any danger of this swelling causing her death?

Merrill, Wis. G.B.

Cows often develop swellings in the connective tissue of the udder. The enlargement may be due to an edema, a hematoma which contains blood or blood serum, or an abscess. If the condition has been present for some time, chances are a hematoma with blood or serum is more likely to be present. The possibility of causing death is not very great.

If the swelling is large enough to interfere with ordinary activity, such as walking or lying down, perhaps your veterinarian should make an exploratory tapping to determine possibility of drainage and follow-up treatment.

LEAKING TEATS

I have a large Brown Swiss—Guernsey cow that was fresh in December. She gives about 20 to 21 pounds milk to a milking. About a month ago she started losing her milk. I have entered the barn and found her milk dripping at 11 a.m. At times it runs in a little stream from back two or even all four teats.

Is there anything that can be done to help her hold her milk?

Bear Lake, Mich. E.H.

It would appear relaxation of the sphincter muscles at the end of the teats occurs following some sort of stimulus. This is similar to massaging the teats and udder before milking. Possibly the mere fact someone is entering the barn produces the stimulus.

If the underlying cause could be determined and removed, possibly the condition would correct itself. In addition, you might have your veterinarian make four or five injections of a drop of Lugol solution into the tissue at the end of the teat immediately surrounding the opening. Injections usually need to be repeated once or more times at intervals of 10 days.

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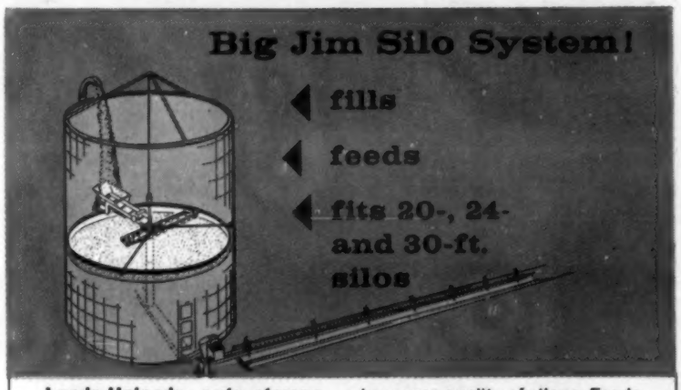

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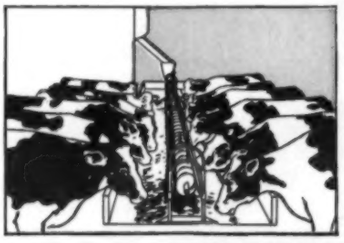

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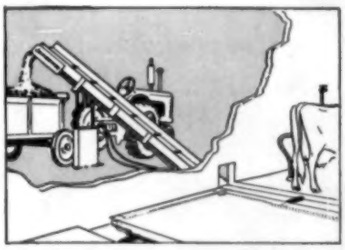

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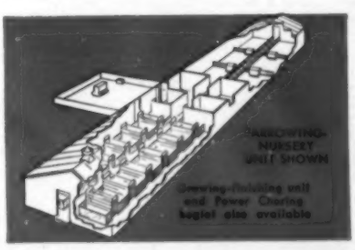

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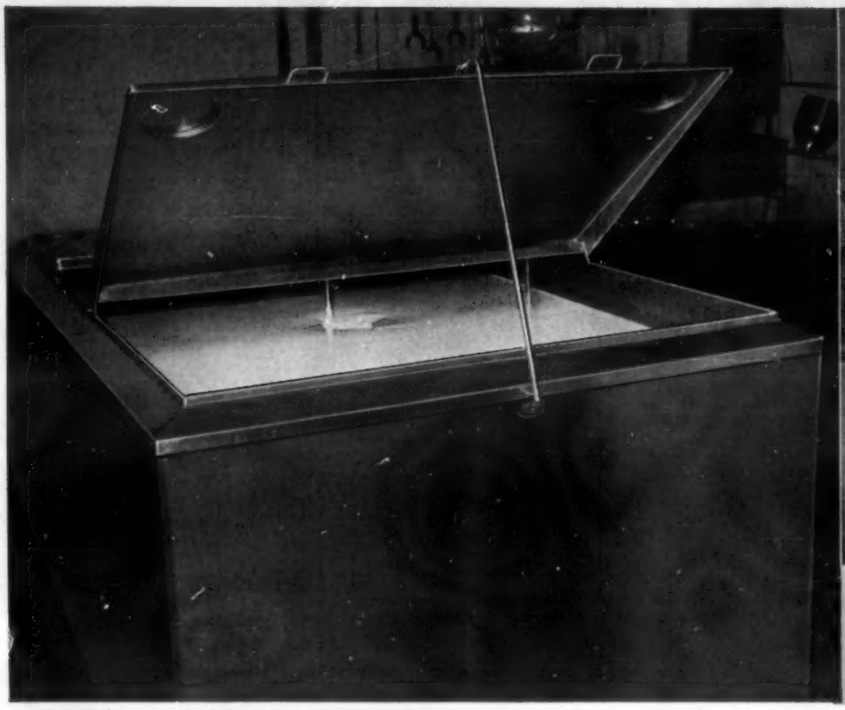

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"The Blend Temperature Never Exceeds 40° In Our DARI-KOOL!"

Writes LOUIS DeJONG, DeJong Dairy Farms, R.D.#2, Montgomery, N. Y.

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(signed) *Louis De Jong*

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